

**AUGUST • 1949**

**Vol. 6 • No. 8**

Page

<b>THIS PLANT IS BUILT TO DESIGN, FABRICATE AND FINISH SHEET STEEL SIGNS</b>	By H. H. Wineburg and J. E. Bourland	19
<b>A METHOD FOR CHECKING WATER VAPOR IN DRYING SYSTEMS</b>	.....By Joe Irwin	23
<b>REPORT ON PROGRESS OF NATIONAL SAFE TRANSIT PROGRAM</b>	.....	25
<b>NEW THINKING FOR AN OLD BUSINESS</b>	...By W. A. Jones	31
<b>DESIGNING FOR SALES IN 1949</b>	.....By W. J. Russell	41

### Features

<b>THE FINISH LINE — An Editorial</b>	.....	17
<b>LATEST ORGANIZATION CHART FOR NATIONAL SAFE TRANSIT PROGRAM</b>	..	26
<b>SNAPSHOTS AT PEI SALES MANAGEMENT CONFERENCE — finishfotos</b>	..	28 & 29
<b>PEGASUS IN PORCELAIN</b>	.....By Malden Grange Bishop	36 & 37

### Industrial News

<b>THE THIRD ANNUAL PEI SALES MANAGEMENT CONFERENCE</b>	.....	27
<b>SUMMER HOMEFURNISHINGS MARKET</b>	.....	34
<b>PROGRAM FOR 11th ANNUAL PEI FORUM</b>	.....	39
<b>INDUSTRY NEWS AND PERSONALS</b>	.....	47
<b>PACIFIC COAST ENAMELERS DISCUSS NEW CERAMIC SCHOOL</b>	.....By Malden Grange Bishop	53

### Miscellaneous

<b>NEW SUPPLIES AND EQUIPMENT</b>	.....	56
<b>NEW INDUSTRIAL LITERATURE</b>	.....	56
<b>ADVERTISERS' INDEX</b>	.....	72



LONDON GUARANTEE BUILDING  
Michigan Avenue at Wacker Drive  
THE HOME OF

**finish**

MONTHLY TRADE PUBLICATION  
Established January, 1944

Published by  
DANA CHASE PUBLICATIONS  
360 North Michigan Avenue  
Chicago 1

Telephone CEntral 6-1229

A trade publication devoted to the interests of the manufacturers of major home appliances and allied metal products. Covers plant facilities and manufacturing problems from raw metal to finished product, with special emphasis on metal finishing.

Free controlled circulation to management, purchasing, engineering and key plant personnel in companies intimately connected with the field covered. To others, subscription price \$3.00 per year. Foreign subscription price (U.S. funds) \$5.00 per year.

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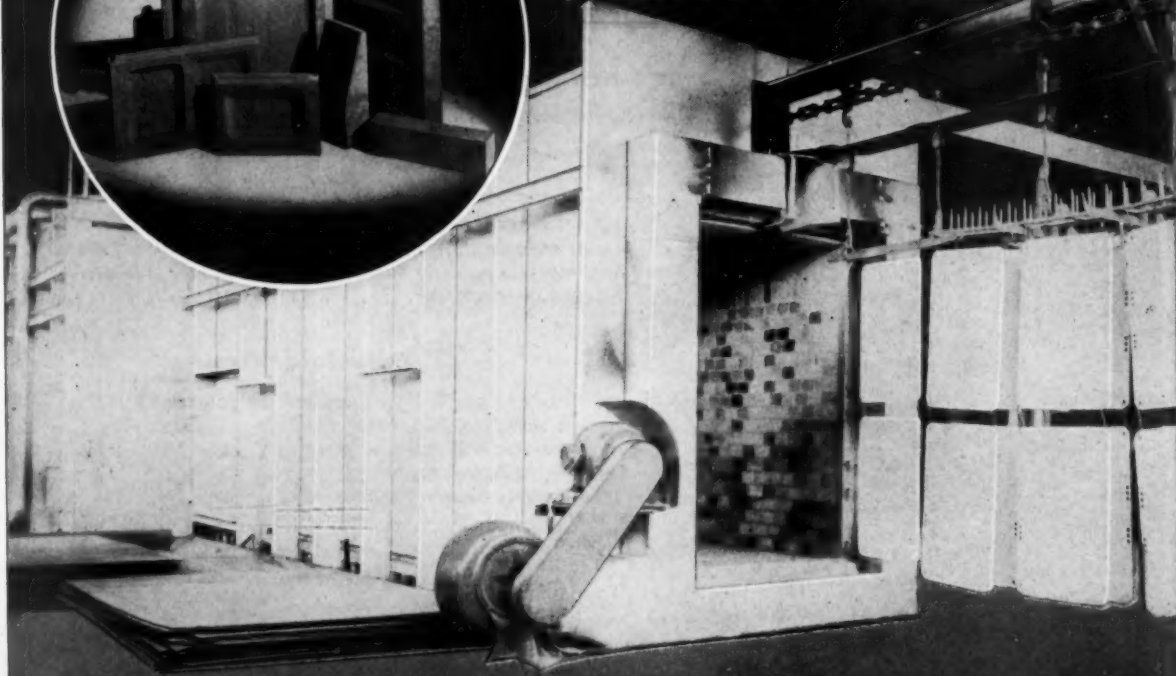
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		Reflectance values at application weight of		
		35 grams /ft <sup>2</sup>	40 grams /ft <sup>2</sup>	45 grams /ft <sup>2</sup>
TYPE A	No Opacifier	74.8	77.0	78.8
	2% Opax S	76.0	78.0	79.8
TYPE B	No Opacifier	75.0	77.0	78.4
	2% Opax S	76.5	78.8	80.4

### Typical Low Fire Zirconamels

		Reflectance values at application weight of		
		35 grams /ft <sup>2</sup>	40 grams /ft <sup>2</sup>	45 grams /ft <sup>2</sup>
TYPE A	No Opacifier	73.0	75.6	77.4
	2% Opax S	74.6	77.0	78.7

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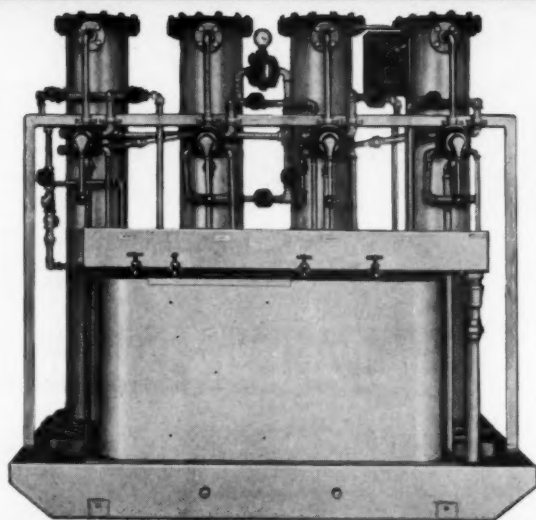


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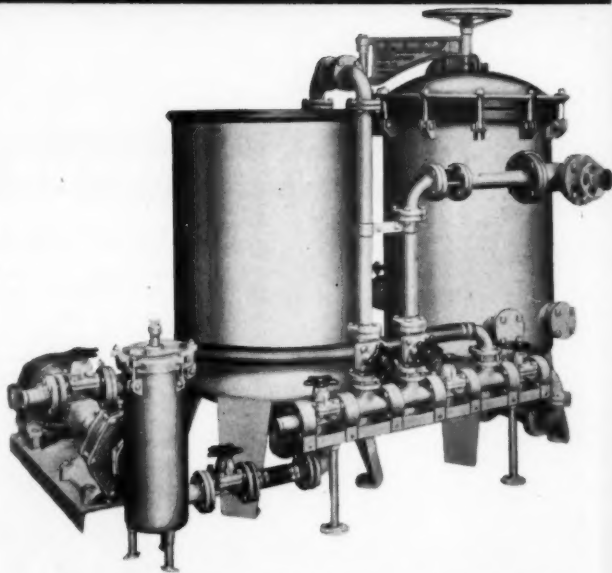
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# COMPLETE *Finishing* SYSTEMS

for ENAMEL • LACQUER • PAINT



Exterior View of a Complete Mahon Finishing System Planned and Installed for the Coleman Company, Wichita, Kansas.

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Interior View on Ground Level Showing Mahon Hydro-Filter Spray Booths in Two Production Lines with Diffusers of Filtered Air Supply System Directly Above. Metal Cleaning and Rust Proofing, Spray Painting, and Dip Enameling Equipment are Located on the Ground Floor. The Filtered Air Supply System, Drying Ovens, Bake Ovens, Heating Units and Controls, and Recirculating and Exhaust Fans are located on the Second Floor Level.

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Engineers and Manufacturers of Complete Finishing Systems—including Metal Cleaning and Rust Proofing Equipment, Dry-off Ovens, Hydro-Filter Spray Booths, Filtered Air Supply Systems, Drying and Baking Ovens, and Paint Reclamation Units. Also, Core Ovens, Hydro-Foam Dust Collectors, and many other Units of Special Production Equipment.

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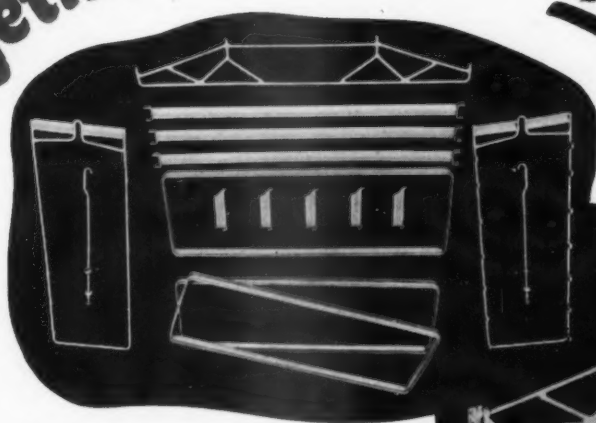
Another thing to remember is that when your enameling is done at "Century" you get "Century" time-proved enamels, the product of experience, fine equipment and careful control.

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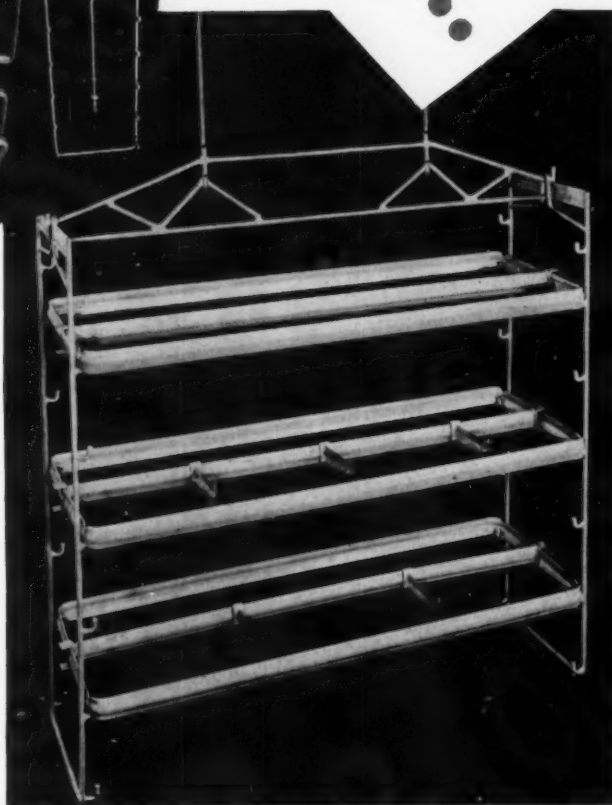
The wrought INCONEL construction of Strohecker tools permits a weight saving of as much as fifty per cent over other commonly used fixtures... and this with adequate strength and long service life.

Like other leading fabricators, Strohecker Incorporated chose INCONEL as the metal for their improved tools because of INCONEL's outstanding service record in high-heat applications. In many cases, INCONEL furnace fixtures have lasted thousands of hours where

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**STROHECKER INCORPORATED**  
Enon Valley, Pennsylvania



*Light-weight Inconel burning tool, designed and fabricated by Strohecker Incorporated. Previously-used fixtures weighed 67 pounds and carried a load of 30 to 40 pounds. This all-Inconel Strohecker fixture weighs only 33 pounds, yet carries the same load. Fuel savings in a furnace equipped with these tools can be considerable.*

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**INCONEL\***...for long life at high temperatures

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**SOME FERRO SERVICES FOR THE METAL FINISHING INDUSTRY**

	PAGE
Ferro Engineering Background	3
Ferro's Oven Engineering Policy	4
Advantages of Ferro Engineering	6
Special Ferro Oven Design Features	8
Basic Heating Methods for Oven Finishing & Drying Installations	9
A Few of the Considerations Ferro Gives to Every Oven and Dryer Installation	10
Basic Type Ovens and Dryers	
Cabinet and Batch-Type Ovens	12
Floor Conveyor Ovens	14
Overhead Trolley Ovens	16
Cross-Bar Conveyor Ovens	18
Supporting Conveyor Ovens	20
Rotary Dryers	22
Web Dryers	24
Proof of the Performance of Ferro Ovens	26
Engineering Data	27
Ferro Engineered Spray Booths	31
Metal Parts Cleaning Equipment and Compounds	32
Ferro Designed Conveyor Equipment	34



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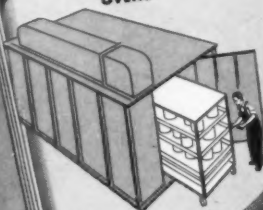
All Ferro spray booths and air supply systems are designed, built, and constructed under one complete supervision. We assume complete responsibility for fulfilling all requirements of the Underwriters' Laboratories, Inc., Board of Underwriters, and all local requirements of fire, health, state, and legal authorities. Every installation is engineered and designed to ensure maximum protection to the operator, as well as safety of property.

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## WHAT YOU CAN EXPECT FROM

## A Ferro -ENGINEERED

### Cabinet and Batch-type Oven Installation

Frankly! This is the principal reason this type oven has found such widespread acceptance. It is ideal for limited production, large bulky pieces, or for a variety of parts, scrapwork. It is ideal for heating up of one, two, three, or more, components both large and small. The oven may be made up of one, two, three, or four compartments, each having doors on one or both ends. Individual doors for each rack or gas can be provided or vertical lift doors, if desired. Most ovens of this type are constructed heated. The fuel may be oil, gas, electric, or steam, and may be direct or indirectly fired. Heating can be controlled manually or automatically, or a combination program of heating and recording control may be used. When the oven consists of more than one compartment, Ferro-engineered multiple heating units may be employed so that part of the installation can be shut off during shut-down, automatic equalizing, automatic shut-down, temperature control, and gas control, humidity, or vapor concentration control equipment, purging and other special instruments may be incorporated when desired.

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Just pretend you are Mrs. Jones getting ready for a picnic. You are slicing the crusts off the sandwich bread.

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Plastic tops are also scratched—never again will the top look fresh and new.

Linoleum tops are cut.

Porcelain enameled tops with their life-time finish aren't harmed at all. They are *made* for working surfaces.

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We are ready to work with any forward-looking appliance manufacturer.

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when it's time to reline...

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McDaniel Mill Lining Brick come in a complete range of sizes and, in conjunction with McDaniel Fill-In Brick, are easily and quickly set up.

Because they are *extra-fired* to ensure complete vitrification, McDaniel Brick wear longer than other brick. Their longer life means more production per relining—reduces costly downtime.

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#### • HAND ROLLED GRINDING BALLS

Made from specially developed vitreous porcelain body and hand rolled for faster, uniform grinding. Mill tested and individually inspected before shipment to you.

#### • MILL LINING BRICK

Low in glass content, McDaniel Mill Lining Brick gives maximum resistance to wear and long, satisfactory service. Complete size range to fit every size mill.

#### • MILL HEAD ASSEMBLIES

Be sure to specify McDaniel Mill Head Assemblies on your new mills. No metal can contaminate your mill charge with these patented covers. They are tops for uniformity of batch and long service.

#### • METAL COVERED GRINDING JARS AND MILLS

Protected with heavy gage steel jacket McDaniel Metal Covered Grinding Jars and Mills are easy to handle, easy to clean, discharge rapidly and stand up under long usage.

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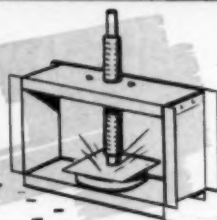
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# HOMMEL ENAMELS

*prove better than standard*  
... on **ALL TESTS.**



## Bond Test— Ground Coat

Hommel's ground coat enamels display superior adherence over a wide firing range when subjected to the standard bond test.



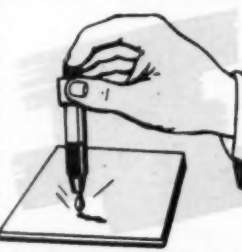
## Scratch Hardness Test—Cover Coat

Under the gram inch test, Hommel enamel plates show unusual resistance. Hommel's enamels are outstanding on surface protection.



## Thermal Shock Test —Cover Coat

Hommel's Tite-Wite (for kitchenware, stove tops, refrigerators) is not affected by extreme thermal shock. Tite-Wite successfully stands the test of repeated high temperature heatings followed by cold water submersions.



## Acid Resistance Test—Cover Coat

Hommel acid resistant frit and Tite-Wite pass the PEI Class AA test. No indication of any stain from the acid.



## Cold Test— Cover Coat

Repeated freezing and thawing tests to simulate cold wall refrigeration conditions produce no spalling failure on Hommel refrigerator enamels.



## Reflectance—Color —Cover Coat

Hommel's enamels have superior reflectance and color qualifications. Constant laboratory research tests insure maximum opacity and color stability.

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*World's Most Complete Ceramic Supplier*

AUGUST • 1949 finish

# THE *Finish Line*



**JUST ONE YEAR AGO** — we wrote an editorial in the environment of the Grand Hotel on beautiful Mackinac Island. Now, while at the same spot, attending the AWIMA convention, we have good reason to write on the same subject—all-porcelain refrigerators. Our research department tells us that this is the 15th time that this subject has been taken up in *The Finish Line*, starting with two references in 1944, three in '45, two in '46, three in '47, three in '48, and this representing the second reference this year.

It would be an unusual commentator, reporter, or editor, who did not make specific reference to a prophecy that comes true, while forgetting the many that prove to be in error. More about the prophecy later, but in the meantime let's read a heading and three paragraphs from the August 1948 *Finish Line*.

## **"The public wants them"**

"If you will check, you will find that some of your immediate neighbors are in the market for new refrigerators, and that they are trying to find (fruitlessly, of course,) refrigerators with porcelain enameled exteriors.

"Just before leaving home for the AWIMA convention at Mackinac, a neighbor told us that a new refrigerator was being moved in. This neighbor has owned a porcelain enameled unit and has consistently refused (for six months) to buy a new one until a porcelain enameled exterior could be found. Finally the search was given up and a new unit, sans porcelain enamel, was purchased. It is interesting to note that the new one is *not* the same make, and the customer is *not* satisfied and *won't* be satisfied until a porcelain enameled unit can be obtained.

"This is only one of the many, many cases where good friends of porcelain enamel—friends resulting from long-time satisfaction with older appliances—are required to buy something they don't want because at present no manufacturer is offering the new models with the *only* lifetime finish on refrigerator exteriors."

## **A current case —**

The best case came to our attention a few days ago. A friend tells us that his brother's electric refrigerator came to the end of its days and, hearing that all-porcelain refrigerators were again available, he went into a dealer's store to purchase one. Unfortunately, this dealer does not as yet have any in stock. The result—this buyer has

brought into use an old ice refrigerator and swears that he'll use it until he can purchase an all-porcelain job.

## **The prophecy —**

The December 1948 issue seems to offer the shortest presentation of the prophecy which has been made and repeated in *The Finish Line*. It reads:

*"As for refrigerator exteriors of porcelain enamel—they will be back. Although little is being said by producers now, they have not been forgotten . . ."*

The editorial states further: "There is a valuable existing market *now* for porcelain enameled exteriors among present users. It will expand rapidly when the first porcelain enameled exteriors are on the market and forcefully presented through sales and advertising. We believe the top sales executives of the major refrigerator manufacturers *know* this . . . ."

## **The good news —**

The good news for *finish* and for all of the thousands of loyal porcelain enamel users who have been waiting to get their all-porcelain refrigerators lies in the fact that at least one major producer is now building and advertising refrigerators with porcelain enamel finish, *both inside and out*. This leads us to a repetition of two paragraphs from earlier editorials which seem to be pertinent for repetition at this time. These words were directed to the manufacturers.

*"Certainly you can market all the refrigerators you can produce today, regardless of the finish, but some progressive manufacturers can steal a big piece of a permanent future by offering soon what the experienced refrigerator buyer wants—an all porcelain enameled refrigerator."*

*"The manufacturer who first takes advantage of this existing market will be buying a life insurance policy—a policy insuring repeat business from satisfied customers for many years to come. . . ."*

More power to the first manufacturer—who'll be second?

*Dana Chase*

EDITOR AND PUBLISHER

## CONSIDERATIONS IN THE WELDING AND METAL FINISHING OF TITANIUM STEEL

In order to take full advantage of titanium enameling steel's superior enameling characteristics (it requires no cobalt-oxide ground coat and can be enameled with a single thin white cover coat), several factors must be taken into account in the welding and metal finishing of this base metal.

Titanium steel welds as readily as any fully deoxidized, low-carbon steel, so the problem involved is not that of obtaining a strong joint, but one that will enamel as successfully as the base metal.

### Types of Weld

Welded joints made by the electric pressure welding processes (seam, spot, and butt) will enamel satisfactorily with either zirconium or titanium-oxide cover-coat enamels. Oxyacetylene welds will also enamel satisfactorily when made without the use of filler rods. If a filler rod of titanium enameling steel is used, the welds can usually be satisfactorily finished with the newer and lower-fusing titanium-oxide enamel, but not with a single coat of zirconium enamel.

### CARBON AND TITANIUM IN WELDS MADE WITH OXYACETYLENE AND OXYHYDROGEN FLAMES (%)

	Carbon	Titanium
Analysis of filler rod	0.06	0.54
Weld metal deposited with oxyacetylene flame	0.12	0.12
Weld metal deposited with oxyhydrogen flame	0.03	0.20

Arc welding has proved satisfactory when using titanium-oxide cover-coat enamel, but has not been successful when using zirconium enamel. Preliminary work with the Heliarc process, using argon with an uncoated titanium enameling steel welding rod, has shown encouraging results.

Gas welds that will enamel well are more successfully made using the oxyhydrogen process, with strips of titanium steel as the filler rod. Oxyhydrogen

welding is about 10% slower than oxyacetylene welding. However, using this process, the ratio of titanium to carbon in the weld area more nearly approximates the 4 to 1 necessary for good enameling, as can be seen from the preceding table.

Regular oxyacetylene welding equipment may be used for oxyhydrogen welding, although a size larger tip is recommended. In using oxyhydrogen, 18-gauge stock is about the upper limit of sheet thickness for satisfactory results. In using this process, the flame should be as nearly neutral as possible, as oxidizing flames tend to burn through the metal.

### Careful Finishing Is Necessary

Regardless of the welding process used, all grease and oil should be removed from the metal to be joined. In addition to insuring a more satisfactory weld, this eliminates the carbonized deposits at the weld area.

Since titanium steel is non-reboiling, and can be enameled with a thin white cover coat, careful metal finishing is imperative, just as it is for paint finishes. For the application of coatings as thin as .004 and .005 in., the metal surface has to be especially free from deep scratches, die marks, and other irregularities, which normally may be covered by standard coatings.

Metal finishing should be kept at a minimum. When metal finishing becomes necessary to remove burrs, dings, and



*Titanium steel welds easily, but care must be taken so that the weld will enamel as successfully as the base metal.*

scratches, it should be limited to the smallest area needed for the removal of the blemish. Some abrasives cause enamel blistering if left embedded in the metal, and the abrasive used should be approved by your enamel shop. Where surface blemishes must be removed, select a finer abrasive than normally used, so as to take the shallowest possible cut.

Minimizing metal finishing and exercising care in handling blanks so as to avoid surface injuries such as nicks and dents will help in obtaining a smooth, flawless, single-enamel cover coat on titanium enameling steel.

Future Enameler's Data Sheets will further discuss the properties of Inland TI-NAMEL titanium enameling steel. Write if you would like additional information on this superior base metal.

**Inland Steel Company, 38 S. Dearborn St., Chicago 3, Ill.**

**SALES OFFICES:** Chicago, Davenport, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul

**OTHER PRODUCTS:** Bars • Sheets • Strip • Structural Plates • Tin Plate • Floor Plate • Piling • Reinforcing Bars  
Rails • Track Accessories



# INLAND TI-NAMEL

Reg. U. S. Pat. Off.

**TITANIUM-BEARING KILLED STEEL ENAMELING SHEETS**



# This plant is built

to design, fabricate and finish sheet steel signs

By *H. H. Wineburgh* • PRESIDENT, AND *J. E. Bourland* • VICE PRESIDENT  
IN CHARGE OF ENGINEERING, *TEXLITE, INC.*, DALLAS, TEXAS

IN planning our new plant, a location was selected that afforded good transportation for employees, abundant trackage and where there were ample utilities such as gas, electricity and water.

Each department head consulted with the engineering department on the type of building that was to be built and the type of facilities that should be installed. A mechanical layout was prepared on the general arrangement. The mill room, pickling room, air compressor room and other supporting departments were sized to take care of a continuous furnace planned for the future and the box furnaces required for present production. Adequate heat zones and roof heights and special foundations were designed into the building so that the continuous furnace and supporting equipment could be added without any building changes at a future

date. After months of careful planning, all of this was taken to our architect who designed the building around our mechanical requirements.

### Description of plant and grounds

The property that the new plant is located on is 5.8 acres, with railway trackage on two sides. The building has a 288' front and goes back at its widest point a distance of 509'. There are 114,000 plus square feet of space in the factory, office building and mezzanines throughout the building. In addition to this, there is a separate garage to house company trucks and automobiles.

The building together with all other buildings in the highly planned and restricted Airlawn Industrial Section are set back 50' from the street front. The restrictions on the property are so drafted as not to permit buildings

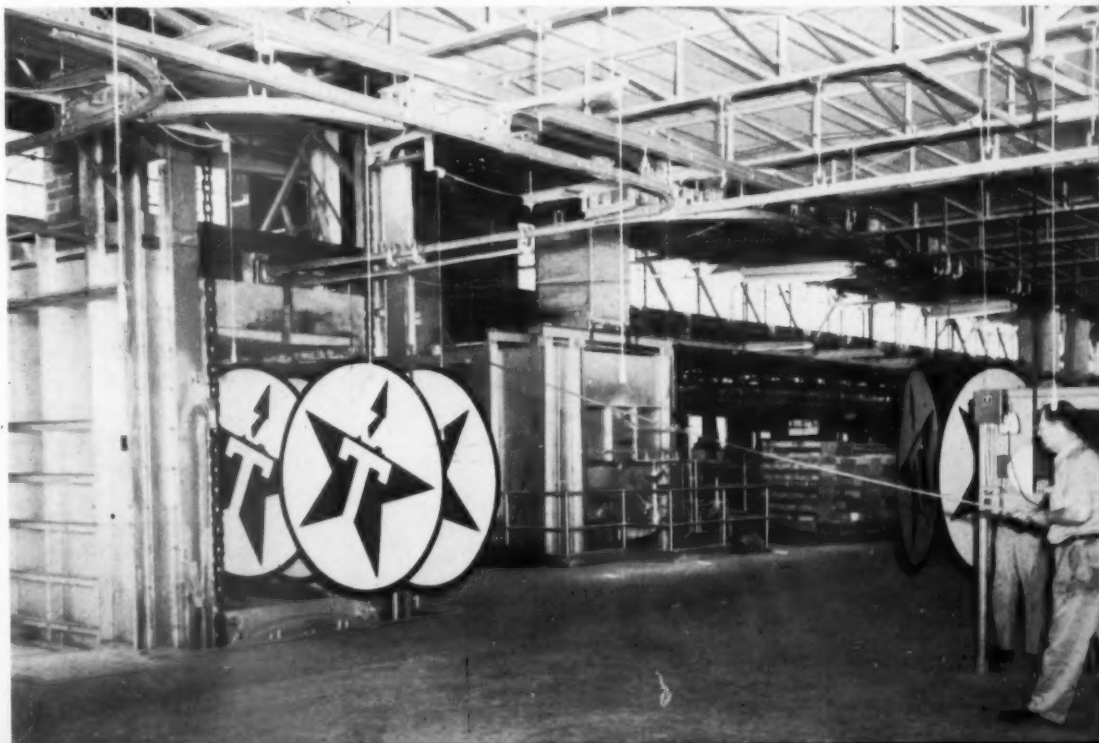
to be closely adjacent to each other. It also does not permit loading docks on any street exposure but requires that they be at side or back of buildings.

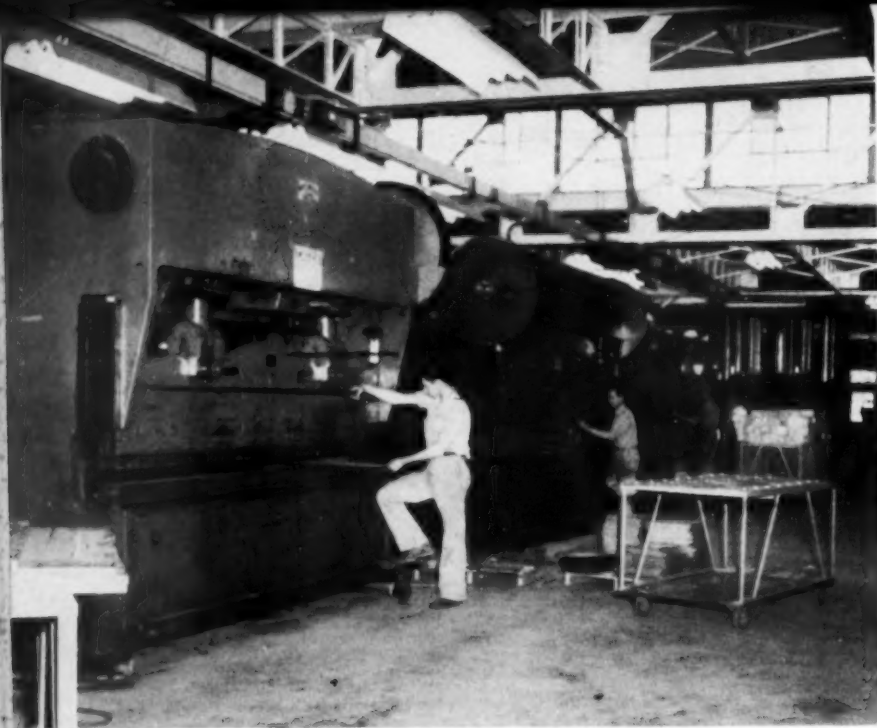
### Porcelain enamel

used architecturally

The two story office portion across the front of the building is built of light cream face brick with a tan porcelain enamel coping across the front at the top. A small canopy completely across the front of the building and down the left side is also faced with a beautiful porcelain enamel fascia. This fascia connects the porcelain enamel soffit at the front door into a spectacular sign at the front of the building. The fluted section above the front door is finished in porcelain enamel architectural panels. Each main panel is embossed with a design in the face

*In operation of new radiant tube type box furnace, front door lowers into pit in front of furnace. Ware is charged into furnace on monorail conveyor which passes through slot in the top.*





*Left: Shown are several of the series of press brakes, with a hydro press in the background.*

of the panel. The trim panels at each side and across the front door are also porcelain enamel.

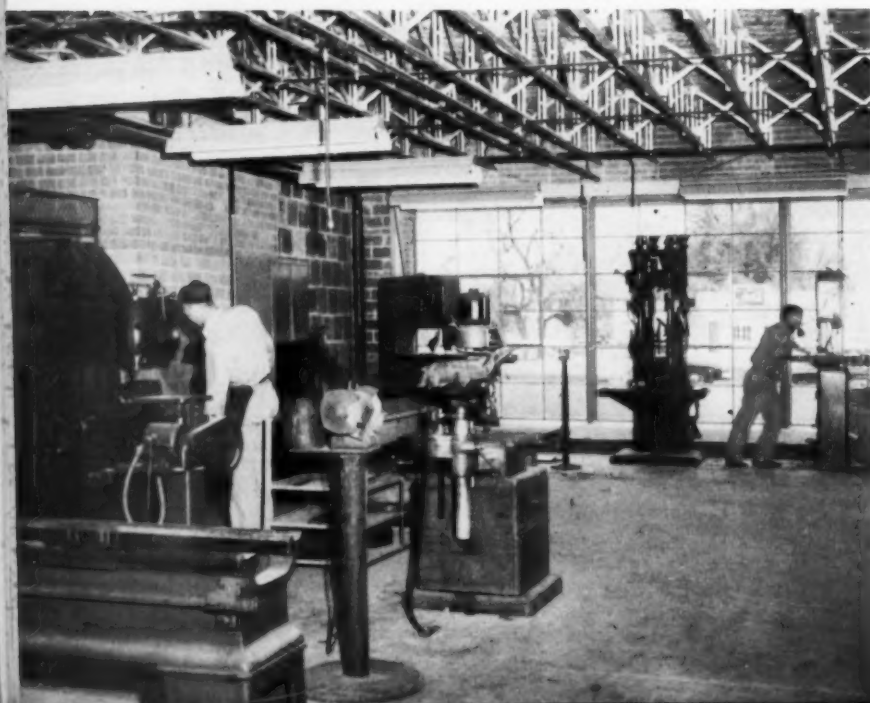
The building is of steel construction with bays 28' x 65'. All steel, chain operated, sash are provided every 28 feet in monitor type roof which provides daylight working conditions all over the plant. The outside of the plant is of brick and corrugated transite with steel wall sash.

The concrete plant floor is of 6", 3,000-lb. test metallic surface hardened, and is built at railway car and truck loading height. Service ramps

into the plant are also provided for trucks.

The low bays of the plant have 12' clearance to the bottom of roof truss with the roof deck 15' above floor. The high bay and area around the continuous furnace has a 16' clearance with the roof deck 19' above the floor. This provides adequate clearance for overhead conveyors. The roof is raised to 30' over hydro press, continuous furnace and box furnaces to provide for clearance and heat traps.

Every consideration has been given



### **Metal fabrication**

As Texlite supplies many sign companies, not only with flat sign faces but with many complicated architectural shapes, a large portion in the front of the factory has been allotted to house special metal working machinery.

This department is laid out so that the metal is received from cars at one end of the metal fabrication area. As the metal is unloaded from the car, it is handled by a 5,000-lb. bridge crane, 40' span with a 75' carriage. This crane handles sheet stock from the storage area to the shears. The sheets are handled in bundles, eliminating surface scratches and eliminating the difficult labor of handling individual sheets. From the shearing operation the metal travels by semi-live jack trucks or by pallets and lift trucks to the press and fabrication department.

### **Press department**

The press department is equipped with twelve presses with 36" throats and gang punches. The power brake department is equipped with five power brakes from 2' up to 14' beds. Much of the work is of a complicated nature requiring hand fabrication which is performed in a well equipped section of the metal fabrication division. After fabrication the metal is

*Left: This section of the tool shop shows typical natural lighting conditions throughout the plant.*

*Right: Photo shows muffle type box furnace in operation. Furnace is equipped with two speed forks.*

carried to a raw bank storage area adjacent to the pickling room.

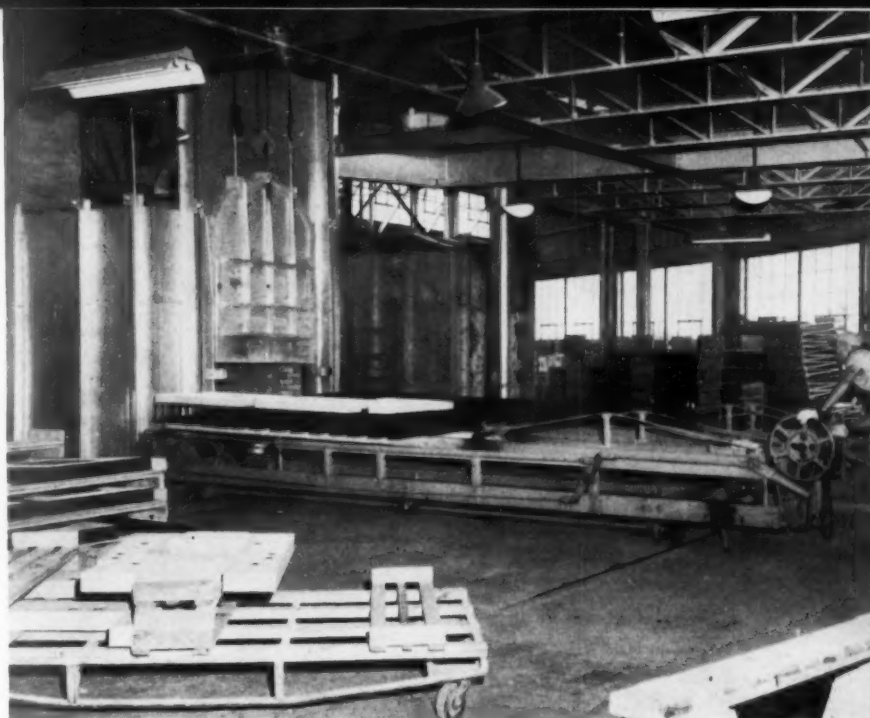
**Pickling department  
is "acid resisting"**

The new pickling department is of the most modern design and has several new ideas incorporated in its construction. This room is 28' wide x 177' long. This part of the plant is of rigid truss construction with a gabled corrugated transite roof and is completely finished on the inside with acid-resisting salt-glazed tile. This portion of the building is completed sealed off from the remainder of the plant by two large doors.

The pickling room is complete with 138' monorail and a 2-ton power travel hoist, which carries large baskets through the pickling operation. At one end of this room, sealed off from the acid fumes, is a boiler room equipped with an 87-hp., 100-lb.-pressure, fully automatic boiler.

The tanks are set in a pit which is 6' deep with stairs at either end so that the operator can control the tanks from a walkway in the pit. Included are one steel cleansing tank, one steel rinse tank, a brick acid tank, rinse tank, a nickel and nickel rinse, a steel neutralizer tank, and a steel gas fired dryer. Provisions have been made for an additional cleaner tank. These tanks are 7'6" deep, 5'6" wide, and 13'6" long, and are designed to accommodate signs 6' x 12', or for sanitary ware, stove liners, refrigerator liners, and other materials requiring considerable area for pickling.

The outside wall of the pickle room is equipped with a honeycomb tile arrangement which lets fresh air in. Air is exhausted through four 135,000 cubic feet per minute exhaust fans. These fans change the air once



per minute in the room, exhausting the fumes, steam, etc. through the roof. The room is windowless and is lighted by side mounted, wide angle, porcelain enamel reflectors. This department includes a complete control laboratory which is also finished in acid-resisting glazed tile. The laboratory is complete with all chemical testing equipment to control the pickling room operation.

The walls and columns of the mill room are faced with acid-resisting glazed tile which makes it easy to clean the room with a hose. The op-

eration of this room can be better understood when one understands the tremendous problem of compounding, grinding and testing more than 400 colors in porcelain enamel. Each of these enamel colors are compounded from raw material by formulas developed by Textile over the years.

Much study was given to the layout of a room for storing raw materials, and it was decided that overhead storage and chute loading of mills was the answer. A second story section is built over the mill room and laboratory for storage of frit. This



*Right: Shown is section of the brushing room which is closed off from remainder of porcelain plant.*





*Left: Frit is unloaded from freight car onto conveyor which carries it to storage space over the mill room.*

room has storage capacity to handle six railroad cars of frit at one time. The frit is unloaded from tracks outside the plant to the second floor storage area by a series of power conveyors. This allows three men to unload a 60,000-lb. car of frit in less than four hours. Frit is loaded into any one of a battery of mills in the mill room through hoppers and chutes in the floor of the storage area. Various mill additions and color oxides are blended in the control laboratory. Water is added to the mill through a meter to insure correct water content. Enamel is ground in water cooled ball mills which are directly driven by gear-head motors. Each mill is controlled by a revolution counter to standardize milling. After mills have ground to exact time, specimens are removed from the milled enamel. Fineness, specific

gravity and color match is checked. Color samples are made in the laboratory adjacent to the room.

This laboratory is equipped with spray booth, electric laboratory furn-

ace controlled by a pyrometer and timing device, electric dryer, experimental cleaning and pickling setup and other necessary control equipment. The mill room is equipped with a complete system of floor chases to keep milled enamel and mill washings from getting into sewerage. There are 168' of trench divided into 14 small settling basins by use of removable weirs. There are also six large sumps to eliminate all settling in the sewerage lines outside the building.

#### **Spraying, spray booths and equipment**

The porcelain plant is equipped with four spray booths ranging from one 5' wide to an 18' water washed booth. All spray booths are equipped with 30-gal. and 60-gal. pressure feed tanks with air driven agitators. All sumps and floor drains have been built into the building for future addition of automatic spray equipment for laydown type conveyor.

#### **Eight-foot photographic screens for screen process**

The stencil department and dark room for the photographic screen process are located on the mezzanine

*to Page 66 →*



*Right: The new plant is located in the highly planned and restricted Airlawn Industrial Section of Dallas.*



# A method for checking water vapor in drying systems

By Joe Irwin • JOJINE PRODUCTS DIVISION, V. B. PUNDERSON CO., FREMONT, OHIO



For years it has been known that the amount of water vapor present in the atmosphere of dryers used for drying dipped or sprayed enamel ware has a big influence on the bisque strength, tendency for shattering of the bisque enamel, tearing, scumming, and other troubles that occur in the drying of such enamel ware.

The various theories of drying have been explained several times in the literature, and the importance of some degree of saturation of the drying atmosphere with moisture has been stressed. We have been told that if the dryer atmosphere is too dry, it tends to draw the water from the ware too fast, and, as a result, the enamel dries hard on the surface before all the moisture is removed from the sub-surface. This results in surface cracking, much the same as occurs when a mud puddle is dried out rapidly by the sun on a hot day.

However, the best conditions for drying, and simple methods for determining them, do not seem to be common knowledge throughout our industry. A recent report of a survey of a large number of porcelain plants tend to prove this. In the report it was showed that only one plant reported any control of humidity in their dryer.

## Trial and error has prevailed

To date, the accepted method seems to be this: If the ware coming from the dryer tends to shatter badly in brushing, for instance, some one may decide that it is due to not enough moisture in the dryer, and procede to inject water into the dryer by means of pans of water on the floor of the dryer, or by injecting live

steam, or by simply sprinkling water on the floor of the dryer. It is possible, also, to increase the water content by increasing the amount of recirculation of dryer atmosphere in some cases. At times, it may be decided that the dryer atmosphere is too "wet," and steps may be taken to reduce the amount of water vapor present in the dryer by increasing the amount of fresh air going to the dryer.

However, these changes in dryer operation are made, as a rule, without any definite knowledge as to just how much water vapor was present in the first place. Experience has indicated that a change should be made either to produce more or less water vapor in the dryer atmosphere. Only too often it is assumed that when trouble occurs it is not due to the dryer conditions but to some change in the milled enamel. Because the dryer is operating at the same temperature, and speed, and on the same type of ware today as it was

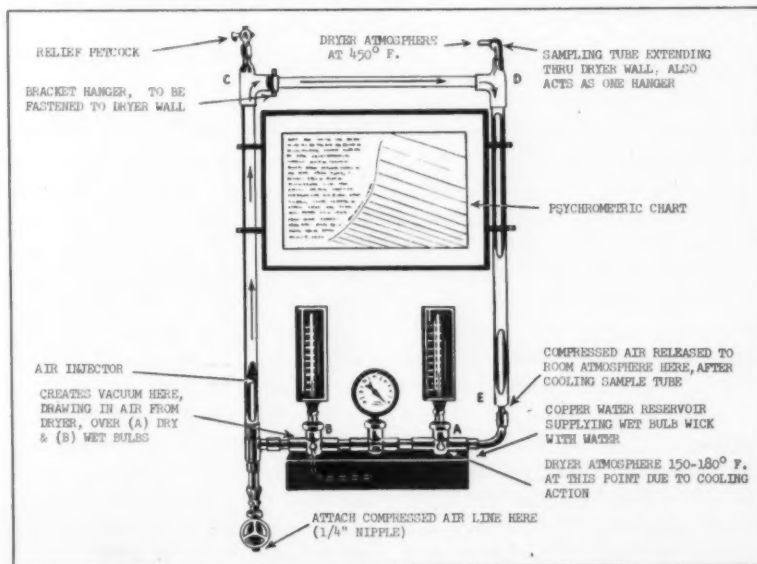
yesterday, it is assumed that actual drying conditions are the same. As a result, it is found that more nitrite, or gum, or urea, or some other sort of mill addition is added or increased in the milled enamel to correct a brushing trouble which may be caused actually by a change in dryer conditions which is undetected.

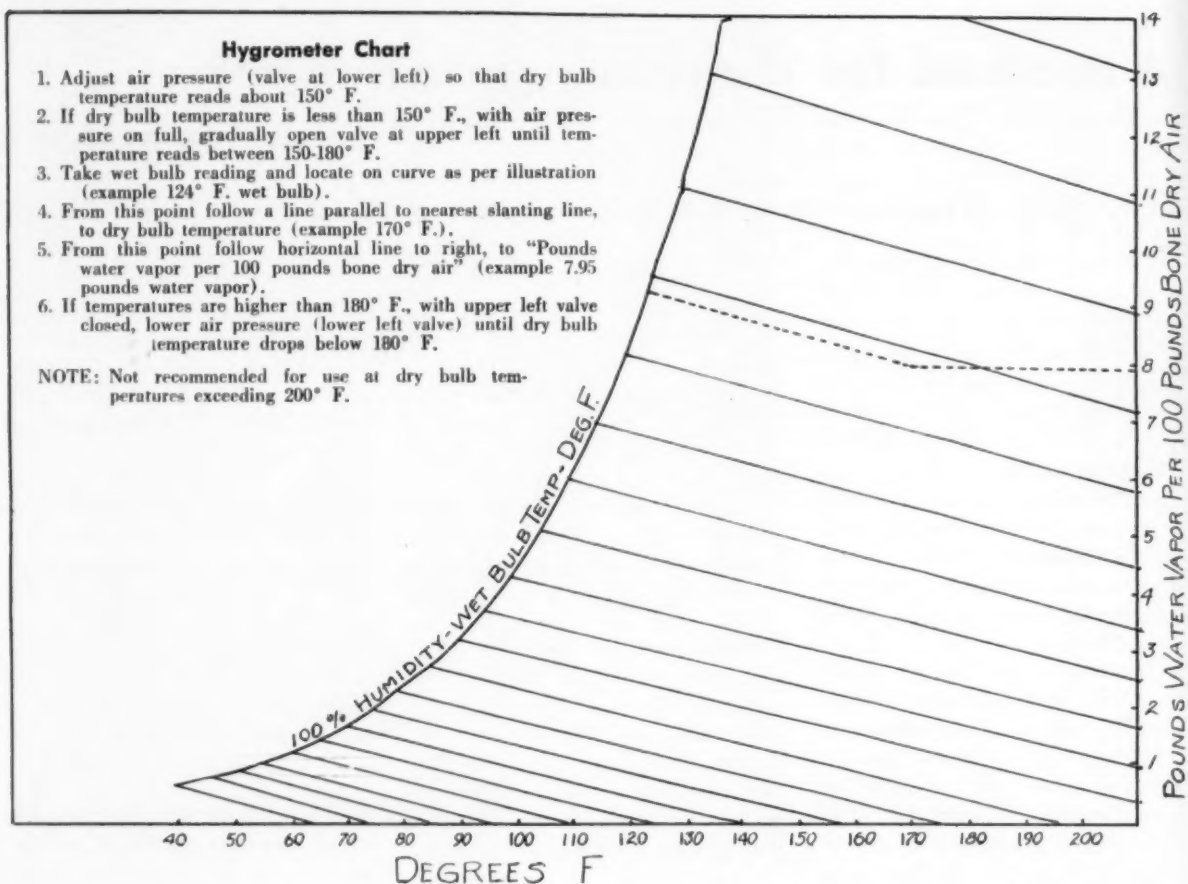
Wet and dry bulb hygrometry has been known for a long time, but has not been applied to the checking of dryer atmospheres in our industry to any great extent. The high temperatures of most of our dryers have been a drawback to the use of this type of indicator.

## A simple hygrometer does the job

The writer designed a simple hygrometer for the purpose of checking the water content of the dryer atmosphere in one plant. It proved so sensitive, yet simple enough for production plant use, that it is felt it will be of interest to other ename-  
→

*This drawing shows the simple hygrometer designed by the author.*





Since the dryer atmosphere had to be sampled at temperatures ranging from 200° to 450° F., continuously, it was necessary to provide some means for cooling this sample down to a temperature that could be used for wet and dry bulb hygrometry.

#### Operating description

Referring to the illustration, a sample of dryer atmosphere is drawn continuously through the sampling tube A. This is drawn by means of a compressed air injector at B. This draws the sample of dryer atmosphere across the dry bulb, and then over the wet bulb thermometers. The sample then mixes with the compressed air of the injector, which cools on expanding. This mixture of compressed air and sample travels around the tube from B to C to D to E. It passes around the outside of the sampling tube, cooling the sample to a temperature of about 150-180° F.

With dry bulb thermometer readings of 150-180° F., we can determine water vapor content of the

atmosphere when it is as high as 13%, or 13 pounds of water vapor per 100 pounds of bone dry air.

While there is no information available which would indicate just how much water vapor we may expect to find in our "wettest" dryers, we believe it is improbable that very many dryers get as high as 13 pounds of water vapor per 100 pounds of bone dry air.

#### Determining water vapor content

To determine the water vapor content at any time, using this new hygrometer, wet and dry bulb readings are taken. Then the wet bulb temperature is located on the 100% humidity curve of the chart. An imaginary line is drawn from this point, parallel to the nearest slanting line on the chart, to the vertical line representing the dry bulb temperature. A horizontal line from this point to the right side of the chart will show the pounds of water vapor present per 100 pounds of bone dry air.

As an example of what this instrument may indicate to us in time, after it or some similar instruments are in use for awhile, at one plant it was found that cover coat enamel tended to shatter and flake in brushing when the water vapor content was 2-3%. When water was put into the dryer, and the water vapor content raised to 4%, the brushing trouble cleared up.

The instrument described is constructed entirely of copper and brass, for long life. It is nickel plated for appearance, the plating setting off the black trim of the thermometers and chart frame. The psychrometric chart for determining the water vapor content is framed directly above the thermometers for convenience. The water reservoir is all copper, with a float and pointer to indicate the amount of water in the reservoir for the wick of the wet bulb thermometer.

The bulbs of the thermometers are exposed directly to the air sample, and in this way are very sensitive to

to Page 70 →

# Report on SAFE TRANSIT program

**complete second commercial airline flight test to determine effect of landings and other flight conditions on packaged finished metal products**

THE second commercial airline flight test to determine effects of landings and other flight conditions on PACKAGED finished metal products has just been completed at Cleveland, Ohio, by Eastern Airlines. A 4100-mile flight was the second in a series of flight tests which are being conducted by the nation's scheduled airlines represented by Air Cargo, Inc., in cooperation with the National Safe Transit Committee. The initial flight test covered approximately 5000 miles and was conducted by Trans-World Airlines.

The air flight tests are a part of a continuing research program to accumulate data on the shock and vibration incurred in the air shipment of PACKAGED finished metal products. The data is being turned over to the Technical Planning Division of the National Safe Transit Committee for correlation and application to the pre-shipment testing program for PACKAGED PRODUCTS being promoted by this committee under the sponsorship of the Porcelain Enamel Institute, of Washington, D.C.

To make the tests, a pair of two-way ride recorders are mounted in a shipping crate so that both horizontal and vertical impact and vibration can be continuously recorded throughout the flight and subsequent handling. The package just shipped via Eastern Airlines weighed approximately 70 pounds. It was flown for 4140 air miles over regular airline routes between Cleveland, Detroit, Atlanta, Miami, Boston, and returned to Cleveland. The package was carried by five different planes of either the C-47 or Constellation type and was exposed to seven different station handlings representing somewhat excessive shipment hazard.

Similar tests using ride recorder instruments to establish in-transit shock and impact have been conducted by both the Association of American Railroads and the American Trucking Association. The combined data will be used by the National

Safe Transit Committee in determining the severity of pre-shipment testing procedure for PACKAGED finished metal products to be recommended to manufacturers.

**See latest organization chart →**

## Protective packaging competition deadline is Sept. 30

All packages entered in the 3d annual Protective Packaging Competition must be available for competition display not later than September 30, according to an announcement by the Society of Industrial Packaging and Materials Handling Engineers. The competition is being conducted by the Society in connection with its annual exposition to be held this year in Convention Hall, Detroit, Michigan, October 4 to 6.

All entries must be submitted by an individual who is *not* connected with the manufacture and sale of protective packaging materials. No awards will be made to any company or organization. Companies desiring to participate must present their application through a regular employee in their organization. Applicant may submit more than one entry, but a separate application for each entry must be filed.

All entries must be made in one of the following classifications: Group 1—corrugated or solid fibre boxes; Group 2—nailed wood boxes; Group 3—wirebound boxes; Group 4—general; Group 5—export. One package may be entered in one classification only.

Packages are limited in size and weight only to the extent that they can be handled with normal equipment. Articles of unusual size and weight are subject to a service or handling charge at actual cost.

A package may contain any industrial product, and may be wrapped, bundled, strapped, boxed, crated or palletized, packed in metal or glass.

All contestants must furnish detailed information regarding the nature and value of the product which they are packaging; this includes information as to materials used, total cost of package, weight of product packaged, and the principles of packaging employed. From this information the Contest Committee will furnish display posters for each entry exhibited.

Awards will be made at the exposition banquet, at the Book-Cadillac Hotel, Wednesday evening, October 5.

The following awards will be made in each of the five classifications: 1st prize—blue ribbon and \$100.00; 2nd prize—red ribbon and \$50.00; 3rd prize—white ribbon and \$25.00.

Complete rules for the competition may be had by writing to Society of Industrial Packaging and Materials Handling Engineers, Suite 705, 20 W. Jackson Blvd., Chicago 4, Illinois.

All packages entered in the competition must be marked and shipped to the attention of the "Contest Chairman", Protective Packaging Competition, Society of Industrial Packaging and Materials Handling Engineers, Convention Hall, 4484 Cass Avenue, Detroit 1, Michigan.



# ORGANIZATION CHART

## NATIONAL SAFE TRANSIT COMMITTEE

R. F. BISBEE, General Chairman  
Westinghouse Electric Corporation  
Mansfield, Ohio

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#### TECHNICAL PLANNING DIVISION

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Rockford, Ill.  
  
P. W. BUSH  
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Porcelain Enamel Institute  
1010 Vermont Ave., N. W.  
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Gas Appliance Mfrs. Assn.  
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John M. Miller, 1424 16th Street, N. W.  
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Air Cargo, Inc.  
Emery F. Johnson, National Airport  
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Summit, N. J.

SAFE TRANSIT FROM THE ASSEMBLY LINE TO THE FINAL CUSTOMER



# The third annual PEI

## sales management conference

manufacturers and suppliers discuss current manufacturing and marketing problems

**S**ALES and management executives of leading appliance and metal products producing companies met with similar executives of the leading firms in the porcelain enameling industry for the Third Annual Sales Management Conference sponsored by the Porcelain Enamel Institute at the Hotel Carter, Cleveland, Ohio, on June 24.

An unusually fine program of speeches and demonstrations had been arranged by the Conference Committee under the chairmanship of C. P. Lohman, sales manager of Pemco Corporation, Baltimore, Md.

C. D. Clawson, president of the Porcelain Enamel Institute and president of Ferro Enamel Corporation, Cleveland, Ohio, opened the morning session by stating the objectives of the Sales Management Conference. He pointed to the importance of sales and sales management in the current manufacturing and marketing picture, and pointed to the Conference as a logical means of distributing sound sales and management information to those who must engineer, build and sell products in quantity during the coming months.

Headline speakers for the morning session included J. C. Sharp, vice president of engineering, Hotpoint, Inc., Chicago, Illinois; A. J. Billingsley, president, Fuller & Smith & Ross, advertising agency; William J. Russell, vice president in charge of research and engineering development for Landers, Frary & Clark, New Britain, Conn.; and Lawrence F. Greenberger, director of personnel training, Kaufmann's Department Store, Pittsburgh, Pa.

The afternoon session was devoted to fitting porcelain enamel as a finish into the picture for the production of appliances and other metal products, and included top-notch

presentations by authorities on their respective subjects. These authorities included O. P. Depperman, director of advertising and sales promotion, Briggs Manufacturing Company, Detroit; Margaret Davidson, associate editor, *Ladies Home Journal*, New York City; D. H. Malcom, manager, marketing service department, Market Development Division, Armco Steel Corporation, Middletown, Ohio; Dr. G. H. Spencer-Strong, vice president and director of research for Pemco Corporation; and Dr. M. J. Bahnsen, director of chemical research, Ferro Enamel Corporation.

### Reconversion sales methods—1949

American business management is faced with the challenge of making improvements in distribution costs to match the progress which has taken place in design and manufacture in the last 25 years. This does not mean that our present system of distributing and selling products is a bad system. Rather, it is a case of a lacking of coordination in all of the marketing forces.

That statement was made by J. C. Sharp in his talk to the Conference.

Discussing "Reconversion Sales Methods—1949," Sharp listed five new marketing conditions which vitally concern appliance industry management:

1. The appliance industry has production facilities which have been expanded more than 200 per cent over 1939.
2. Production costs are up as a result of higher costs of all materials and labor. Those high production costs have necessitated retail prices far higher than customers have been used to paying.
3. The industry's marketing structure is made up of experienced units approaching obsolescence on

one hand and on the other hand inexperienced retailers who have never faced competitive selling.

4. There is a vastly expanded potential of production in the appliance industry that is difficult to measure because the market has been invaded by former manufacturers of capital goods, food products, and so forth.

5. There is an army of approximately a quarter of a million salesmen who must be trained on the job to sell appliances.

With these as the main problems confronting the industry, Sharp said, the only possible solution is in better market controls. "It must be bluntly admitted that we have not solved the problem of reducing marketing cost in the same way we have production cost. . . . It is the direct responsibility of management to tackle unsolved marketing problems; this solution is necessary for the ultimate soundness of investments that have been put into expanded facilities.

"Whether we be manufacturers, vendors, retailers or perform some other functions that serve the public, it is our obligation to view the conditions that we face realistically. Let's be realists *but not* blindly fall victims to a "defeatist" and "depression" psychology. Today, America has economic potentialities beyond anything we dared dream about before the war. It is the job of each of us to so conduct his business that we become a constructive influence in maintaining good economic conditions, and developing these potentialities to the fullest."

### Advertising as a tool for selling

In fitting advertising into the present selling picture, A. J. Billings-

to Page 30 →

## Snapshots at the PEI

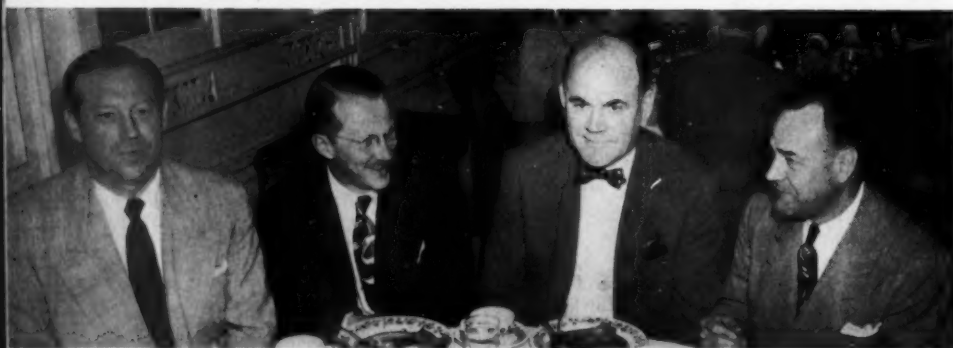
### sales management conference



*Ernest Hommel, O. Hommel Co.; Fred Shaffer, Strong Mfg.; Wm. Metz, Strong Mfg.; and G. Haskell Smith, Pemco Corporation.*



*Mrs. Charlotte Conway, House Beautiful; Charles Morrow, Mullins Mfg.; Mrs. Amber Ludwig, What's New in Home Economics.*



*Frank Townsend, McCann-Erickson; O. P. Depperman, Briggs Mfg.; E. O. Brady, Briggs Mfg.; R. A. Dadisman, Armco Steel.*



*Mark van der Kloet, Erie Enameling; R. J. DeVoe, Davidson Enamel Products; Edward MacKasek, Porcelain Enamel Institute; Cecil D. Rowe, Rowe Sign.*

Robert  
Henry  
Charles

Bob  
Marg  
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E. R.  
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Robert Weaver, Ferro Enamel;  
Henry Honer, Western Stove;  
Charles P. Lohman, Pemco; J.  
C. Sharp, Hotpoint.



finishfotos

Bob Myers, Carnegie-Illinois;  
Margaret Davidson, Ladies Home  
Journal; Robert Lear, American  
Radiator & Standard Sanitary.



W. J. Spencer, Geo. D. Roper;  
Edwin Headland, Enamel Prod-  
ucts; James Holcomb, Wolver-  
ine Porcelain; Lloyd Wellner,  
Bellows Electric.



E. R. Henning, Crane Co.; W.  
H. Brett, AllianceWare; G. E.  
Anderson, Crane Co.; C. J. Rod-  
man, AllianceWare.



James Britt, Mullins Mfg.; W.  
I. Russell, Landers, Frary &  
Clark; Frank Breckenridge,  
Automatic Washer; H. N. Fors-  
berg, Geuder, Paeschke & Frey.





→ from Page 27

ley was frank to state that more advancement has been made in production than in sales techniques. He pointed to the fact that business has, in many instances, expanded into new fields which call for their organizations to face marketing problems for the first time. "Sales don't grow out of production, but production depends on sales," stated Mr. Billingsley as he emphasized the seriousness of the fact that one-half of the present sales people have had no experience in a buyers' market."

There is some "growing up" to do in marketing, as it has not been given the same steady and careful planning as production and finance. General management needs to take marketing into the fold and learn to consider it as carefully as production and finance.

Many business men consider advertising the result instead of the cause of sales. Advertising should be considered as realistic, scientific, and as subject to sound judgment as any other operation.

On the other hand, marketing conditions and advertising requirements have changed, and marketing men and advertising men must "grow up" to meet present problems.

"Advertising is a tool. There is a definite place in advertising for creative inspiration, but marketing men must be *business men* more than *geniuses*."

#### **Selling your products**

##### **at the retail level**

A subject that should be of interest to every producer of a product—from raw materials, through components, to finished products for home use—is the subject of Lawrence F. Greenberger's presentation to the Conference entitled "Selling Your Products at the Retail Level."

Dr. Greenberger has been personnel training director of Kaufmann's Department Store, Pittsburgh, Pa., since 1941 and is nationally known in the sales training field. He instructs classes in industrial and applied psychology at Carnegie Institute of Technology, Pittsburgh, and also teaches courses in human relations, job methods, and person-

nel selection, training, and placement at the University of Pittsburgh.

According to Dr. Greenberger, "All the workmanship, planning, research, designing, and genius which you devote to the manufacture of a product can be completely wasted if the story of your product and its implications for the consumer do not get across at the level of the retail salesperson."

"Manufacturers of consumer goods must keep retail salespeople informed about their products so that pertinent information about product qualities and features may be passed on to the customer and interpreted in terms of better service and better living. Many products have failed completely, simply because salespeople have not been properly informed," he said. "The importance of effective selling cannot be overemphasized; for when we stop selling, the consumer stops buying, and when the consumer stops buying, manufacturers of goods stop producing."

"The modern concept of the consumer and her shopping problems," according to Dr. Greenberger, "is in striking contrast to the old attitude toward selling. The major emphasis in retail training today in selling goods is selling service." Educating salespeople about the goods they sell is an important part of serving the consumer because intelligent selling helps the customer to buy intelligently and, frequently, to buy more, he explained.

"Today's definition of salesmanship," Dr. Greenberger told the Conference, "is simply helping customers to buy. Ninety-five per cent of a wholesale buyer's functions have to do with managing the sales and the selling activity of the employees under his supervision. The whole emphasis in modern retail management is placed on intelligent supervision and good human relations, rather than on just getting the goods."

#### **Glamourizing porcelain enamel**

"Not being permitted consumer copy as tantalizing as that used to describe the range which bakes a better cake while mother directs PTA activities, or the washer which washes clothes even whiter than when they

were new, we were literally forced," said Mr. Depperman in his story of Glamourizing Porcelain Enamel, "to put our basic material, porcelain enamel, under the lens of the high-powered microscope of consumer research to find that important merchandising element so necessary to open up the consumers' pursestrings. Every avenue of discussion with the consumer led to one Grand Central Station—the last stop was always cleaning. . . .

"The story of the product which cleans like 'wiping off a pane of glass' has been carried in advertising and all along the selling front," Mr. Depperman said. "It is the most pegged sales point of our industry, and it gets consumer attention plus buying action. The very word 'stain-proof' implies in the most direct and easily understood terms—'easy to clean.' It was the key to an important interest—the clincher that needed to be added to beauty and styling of product."

"The job of housekeeping today," Mr. Depperman observed, "means more than house-cleaning. It's a job of appliance-cleaning. What stain-proof porcelain enamel has done to reduce the work of cleaning plumbing fixtures," he concluded, "may suggest some new, powerful selling copy to those of you who now use porcelain enamel in your product, who merely mention it casually or not at all in your advertising, who may be hiding this marvelous, easy-to-clean quality under a bushel."

#### **Never underestimate**

##### **the power of a woman**

This heading represents the title of a talk by Margaret Davidson, in which she presented the following facts as a prelude to her story of the importance of women to every manufacturer in the marketing picture.

"Women own seventy per cent of the private wealth, hold sixty-five per cent of all savings accounts, and are beneficiaries of eighty per cent of our life insurance policies. They own forty per cent of our homes and forty-eight per cent of our hotels and restaurants; one-third of our apparel shops, and one-fourth of our per-

to Page 70 →



# New thinking for an old business

By *W. Paul Jones* • VICE PRESIDENT IN CHARGE OF REFRIGERATION DIVISION,  
PHILCO CORPORATION, PHILADELPHIA, PA.

IT is no accident that new thinking was not applied to the old business of making iron into steel from the time some ancient iron-monger first discovered how, until the Bessemer or Kelly or open hearth methods were given to the world about 75 years ago.

And likewise, it is no accident that new thinking was not applied to the old business of ceramics, of porcelain enamel on metal, until relatively recent decades when the art of fusing enamel on varying types of products became general.

I say it was no accident that these things could not take place hundreds or thousands of years earlier because I do not believe that such historic developments ever come about as accidents.

They can come about only as men's minds are made ready to conceive and receive them. They can come about only as the fruition of cooperative effort between the sciences, the trades and the industries, each supporting and supported by the other.

And it is man's mind with which we are concerned.

The porcelain enameling industry, at once one of the oldest and one of the newest, has some great strides to its credit in the last 25 or 30 years. True, you have some critics. At times I myself have been rather vocal in criticism of what seemed a lachrymose attitude toward a need for more modern thinking.

When in the past 25 or 30 years I have felt imposed upon by the enameling industry, I really never dreamed I would have the chance to present my case under circumstances where there could be no rebuttal.

And yet it is not shortcomings that I would present, but rather contributions to progress, the advancements that have been made during the last quarter of a century, and in presenting them, to illustrate in even

greater measure, the future strength that the industry may gain by a renewed application of "new thinking for an old business."

## Fifteen dollar refrigerator liners

Twenty-five years ago the enameling industry was plagued with high costs and great wastage.

Upon looking up some old records on the costs of porcelain liners as

### Editor's Note:

All appliance and metal product manufacturers and all porcelain enamellers will want to read the viewpoint of a manufacturer-executive whose company tests and uses all types of finishes and materials.

Mr. Jones gives credit where credit is due but he lays down definite outlines of achievement required for future progress of the refrigerator and ceramic finishing industries.

used in refrigerators about twenty years ago, I was startled to find that the total cost of steel, porcelain and wastage was over \$15.00 in those days.

Then, three coats were standard but about 40 per cent of the production required a fourth burning.

Then, the wastage factor seldom went below 20 per cent and often as high as 30 per cent.

Then, our engineers had to leave wide tolerances for fitting and mounting because great distortion was the rule and not the exception.

Then, wiping was so extensive that it was a question whether we were trying to make a blue tank with white trim or a white tank with blue trim.

Then, our methods were so slow and cumbersome that we had to work the department around the clock (3 shifts) and yet, with high rejections, frequent breakdowns and much re-firing, we were always slowing down production of the assembly lines.

Then, the product had to be handled as carefully as an egg, and breakage on the assembly line, in shipment and while on display or in use in the home presented a major sales adjustment problem.

Then, our designers and engineers were hedged about with serious restrictions and limitations in designing new models, in making the product more acceptable to the consumer, with increased utility and adaptability.

Then, the porcelain liner alone cost the retail purchaser almost \$50.00 of his total refrigerator cost since there is a factor of almost 3 to 1 of material cost to final selling price.

Of course, as a result refrigerators were high priced in those days and our market for them was relatively small.

During the 1930's, great strides were made by the enameling industry—and because of those strides there were only one or two attempts by major companies to find a cheaper and more flexible substitute.

But even up to the war, large users of porcelain still felt uneasy as to the ultimate ability and willingness of the enameling industry to meet the challenge of needed lower costs and wider adaptation.

## The challenge of

### competitive materials

Plastics suddenly came into the public consciousness with a greatly publicized and romanticized appeal. Aluminum, after several decades of promise, began to make its bid through lower prices, better alloys and faster and cheaper anodizing.

Even the paint people began to talk about a new synthetic enamel which was odorless and would stand up under abrasion.

At about this time we thought it necessary to protect ourselves by acquiring as much know-how as pos-

sible about these new possibilities. We experimented with plastics, but soon found definite shortcomings to their use as refrigerator liners. We went much further with aluminum. We designed a line of household size freezers and at the cost of many hundreds of thousands of dollars worked out one-piece drawn aluminum liners, which up until now have set the standard for the freezer industry.

But now we are beginning to look closely again at porcelain enamel for use in freezers, where up to now we have never used it.

And in the reasons why, lies much of the reward for an industry having already done much new thinking for an old business.

#### The march toward acceptability

Enameling since the war has continued its march toward a more acceptable product at better and better costs. Let us take the measure of the porcelain enameling industry as of 1949 and compare its present dimensions with those of 1929.

Today we pay higher hourly labor rates.

Today we pay more for enameling iron.

Today our other materials and overhead are all generally at a very high level.

But, in spite of all those things, in spite of what we generally consider as handicaps, the finished porcelain product is better, the finished porcelain product is cheaper. Today a porcelain liner for one of our eight cubic foot refrigerators has a total cost under \$6.00 (compared with \$15.00 twenty years ago).

The market is being safeguarded and any losses suffered in the market are being regained. And the great wonder is—how has it been done? For therein lies the key, the answer to the secret of today's industrial magic. Therein lies the answer to today's lightning swift developments of basic discoveries as compared to the long dormancy period of past thousands of years that such discoveries lay completely undeveloped and unapplied. The answer is a known, an accepted and workable

and working inter-dependence of industries, sciences and professions.

#### The power of cooperative effort

It is a form of cooperative endeavor by which businesses aid and abet each other for their common good. More importantly, that common cooperative endeavor redounds also to the common good of the ultimate consumer.

It is one of the finest, most outstanding examples of the breaking

#### W. Paul Jones

— has been vice president in charge of Philco's refrigeration division since 1940, and a director of the firm since 1942. During that period the division grew from a minor part of the company's business to one which accounted for 40% of total Philco sales in 1948.

Jones has been active in the refrigeration industry for nearly 30 years. After experience in the sales, advertising and service divisions of two leading refrigerator manufacturers in executive positions, he served as executive vice president of Fairbanks Morse Home Appliances, in Indianapolis, from 1934 to 1938, when this company sold its refrigerator division to Philco.

In January, 1939, Jones joined Philco and was made president of a subsidiary, Philco Refrigerator Co., until December, 1940, when it became the refrigeration division of Philco Corporation. Then Jones was named vice president in charge of the division.

During the war he served on the WPB electric refrigeration industry advisory committee, and was chairman of the OPA electric refrigeration committee from 1942 to 1946. He is one of the organizers of the National Sales Executives Council, and is a member of the American Society of Refrigeration Engineers.

down of narrow selfishness and suspicion which industrialists and industries practiced a few decades ago.

It is a broad realization of the greater rewards that come from giving a great discovery to the world—even to competitors—rather than keeping it shut away from light and use and knowledge of others who can also use it to common good ends.

Let's look more closely at the record of the porcelain enameling industry alone. Let's see more specifically why today's product is better than 25 years ago but at the same time costs less.

First of all it has a broader market, therefore production is greater with resulting reduction of fixed costs per square foot. But that greater market could never have resulted except for

several related factors fitting together like pieces of a jigsaw puzzle.

#### Factors in the progress of ceramic finishing

Twenty-five years ago it was necessary to work with steels ill-adapted to the process of fusing. The expansion and warpage was almost an uncontrolled and uncontrollable factor. Now there are enameling steels so adaptable as to lend a new meaning to the term "fusing."

Instead of frit mixing formulae that made three and four coats necessary, there are formulae that do a better job of coverage with only two coats (one ground coat and one cover coat). In that development, the breakage bugaboo has been greatly reduced by increasing the safe range of flexibility.

Twenty-five years ago the manufacturer depended entirely on clumsy gas welding for seaming where it was necessary to join related sections as a whole. Today we have swift, clean, smooth electric seam welding that reduces and almost eliminates any necessity for wiping in order to make a non-shattering joint. And in that development alone, the appearance of porcelain enameled products has taken a long step forward toward the smooth clean unbroken surfaces that so enhance their appeal.

Twenty-five years ago firing was done universally in box type furnaces with poorly engineered racks. Today we have beautifully engineered automatic equipment for pickling, for burning under controlled conditions with time, speed, heat and traveling distance interrelated. The ware hangs on carefully engineered hooks with both hook and suspension point accurately gauged to result in the least distortion.

That's only a few of the things that the record shows as rungs in the ladder of upward progress during the last 25 years. But it so accurately illustrates the procedure. It's a procedure where both for individual and common good, several inter-dependent industries work together for betterment of an end product.

One industry develops the steel, another the furnaces, still another the

welders. Another contributes a better frit mix, and when all are tied together over a period, the enameling industry and its product takes a new, higher, firmer foothold in the market.

All industries owe the greater strides made in the last 50 years than in the previous 5000 years to the same formula. It was no accident that in 2000 to 5000 years there was almost nothing done to develop basic discoveries. And likewise, no accident that our rate of improvement should have been so great during the last half century. *The formula is always the same.*

#### Refrigerator progress

For progress in the field of refrigeration we must look to the scientists and industrialists in the field of insulation to continue to make strides in the direction of less cost, less bulk, easier handling and greater durability.

We must look to the scientists and engineers in the electrical field to design and build better motors, of smaller size but greater power and at less cost.

We must expect and appoint to the task, the engineers and metallurgists of the steel industry to give us more adaptable metals, again at less cost, but with more strength and less weight.

We must lay out tasks and appoint objectives to hosts of others who make controls, who develop refrigerants, who manufacture wire, who fabricate shelves and plastics and ice trays and all the other myriad things that will go to make the better refrigerator of 1955 and '60 and '65.

And lastly, we must expect to appoint the enamel technicians to the task of developing a better porcelain enamel—one that will be tougher, more elastic and cheaper and easier to fuse. Happily, these men are already well on their way on their appointed task. Happily, enamelers are now acting more as a unit already, are already discovering the efficacy of "New Thinking for an Old Business."

Efforts in the direction of one coat porcelain enamel are typical and are bound to bear fruit soon. And when it does become a practical reality, it will have made the more certain the important role of the industry in the final destiny of many larger industries, such as refrigerators and ranges and even in the basic construction of the homes we live in.

But even that development which now would seem to be the ultimate cannot ever be said to be so, for there will still remain ahead many necessary and useful developments that are now barred from us for the lack

of know-how, correlated materials and equipment to do the task.

#### Tomorrow's requirements for porcelain enamels

Somehow we have to develop an enamel that will not burn off sharp corners. The radii now required effectively ties the artists' and designers' hands and forces them to use brass, aluminum or plastic at a higher cost in order to achieve sharpness of line and good appearance.

Somehow we must develop a lower fusion point, even below the 1200° F. that now seems acceptable and sufficient for the new one coat process.

Remember that as heats go down, down go costs and up goes the flexibility range without consequent danger of fracture.

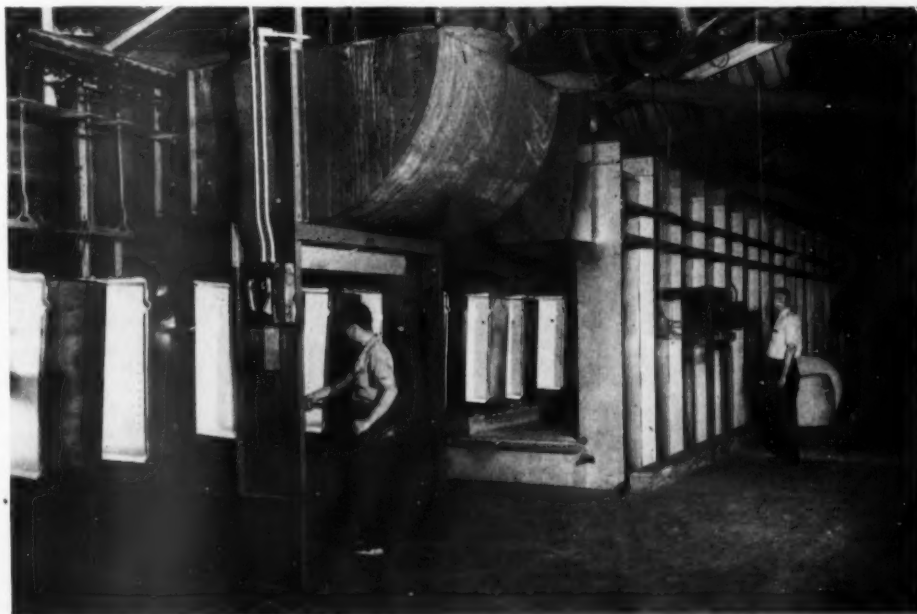
Somehow we must develop a cold patch or at least a method of patching that will be relatively cold. For it still plagues industry that a porcelain fracture of an item in use is a calamity as permanent as death itself.

Today we are able to generate terrific heats that may be directed toward spot areas through the use of infra-red and high frequency rays.

Is it not then within the range of possibility that a lower fusion point

to Page 72 →

*Improved materials, improved processing technique and modern production equipment have helped reduce the cost of an 8 cu. ft. refrigerator liner from \$15 twenty years ago to less than \$6 today.*





# Summer homefurnishings market

general survey of market conditions, business trends, and new products

**I**F buyer attendance at the summer homefurnishings market, held in Chicago, July 5 through 16, is any indication of market conditions, then business is improving. Reports from the market centers, the American Furniture Mart and the Merchandise Mart, indicated that registration throughout the market ran comfortably ahead of the July, 1948, totals.

At a press conference at the Merchandise Mart, July 7, reporters were told by a panel of home appliance manufacturers that the current belief concerning a falling off of business is based on a false premise. The manufacturers present admitted that immediately following the war they stocked up distributors and retailers to the hilt. The retailer especially had a top-heavy inventory in both the light and heavy appliances.

When business did begin to slow down and level off, factories in the home appliance field showed a 40 per cent drop upon which the entire industry based its findings. However, it was admitted at the press conference that the actual falling off of business at the consumer level was less than 10 per cent and the balance

that made up the alleged 40 per cent was a reflection of the overstocking on the part of the producers.

W. A. Blees, vice president of Avco Mfg. Co. and general sales manager of the Crosley Division, told the industry press that "We have been afraid and scared since 1933, but still business goes ahead."

## "Recession" to end by December

Blees ventured that the present "recession" would be brought to a halt by December. He based his forecast on the following facts:

1. Most inventories at all levels of the industry will have been liquidated and replacements will begin.

2. By the end of 1949 labor agreements will have become fully known and employers will know just where they stand on payrolls.

3. The fat accumulated during the lush war years will be squeezed out.

4. Public cannot put off Christmas buying, and this in turn will add confidence to the retailers outlook.

5. In January there will be paid a \$2,800,000,000 accumulation of funds by the government to veterans.

Concerning price reductions, Blees

said there is not enough profit margin in any of the large appliances to permit much, if any, further price reductions. He said dealers' discounts on many appliances are inadequate. In some instances, manufacturers are raising dealers' discounts instead of



This "combination cooking refrigerator" was exhibited by General Air Conditioning Corp.

reducing retail prices. However, Blees warned that *higher discounts cannot offset poor dealer management or inadequate sales effort.*

John Pankow, director of sales, Detroit Michigan Stove Company, said industry sales of gas ranges by manufacturers in April were about 44 per cent below a year earlier, but have picked up since then because of introduction of new models.

## Sink and cabinet business

is still brisk

Harold H. Solof, general sales manager, Tracy Manufacturing Company, stated that his company had a sufficient order backlog on sinks and cabinets to keep two factory shifts working through the first quarter of 1950. The backlogs are primarily the result of large housing projects. He characterized retail trade as the favored part of the sink and cabinet business because it provides continuous volume whereas large contracts for outfitting

Norman Krueter, salesmanager, Geo. D. Roper Corp., and Sally Culver, a model, are shown with Roper's "Town and Country" range.







finishfoto

W. B. Eckenhoff, right, sales manager, Roberts & Mander Corp., shows their new red range to G. H. Muenchow, Minneapolis wholesale dealer.

big housing projects are "one shot affairs."

#### The all-porcelain refrigerator

Among the most outstanding among new appliances shown at the summer market was Frigidaire's new all-porcelain refrigerator. This rounded out Frigidaire's "lifetime porcelain family" which also includes automatic washers and kitchen ranges finished inside and out with porcelain enamel.

#### The "cooking refrigerator"

Another new appliance that drew a great deal of interest from buyers was General Air Conditioning Corporation's revolutionary line of General Chef "combination cooking refrigerators." Both the gas and electric "cooking refrigerators" have a 4 cubic foot refrigerator. The company also displayed a combination radio-refrigerator.

Comstock-Castle Stove Company, celebrating its 100th anniversary, displayed its lines of ranges and water heaters and a 100-year old stove which was reported as being in daily use when it was purchased by the firm in 1940.

#### Combination range-heaters

Two appliance manufacturers offered gas ranges with kitchen heat-

ing sections. Cribben & Sexton Co. showed its gas range with "built-in kitchen heater," and Caloric Stove Corporation offered an all-gas Bungalow Range with a "room heating section."

Forty-one models of nine different appliance lines, nine models being shown for the first time, were displayed by Norge Division of Borg-Warner Corporation.

*Frigidaire's new all-porcelain refrigerator was most outstanding among new appliances shown at the summer market. Robert Krumm, of Frigidaire's major dealer division, points to the word "porcelain" written on the all-porcelain refrigerator's exterior with lipstick which can be easily removed with a damp cloth.*

finishfoto



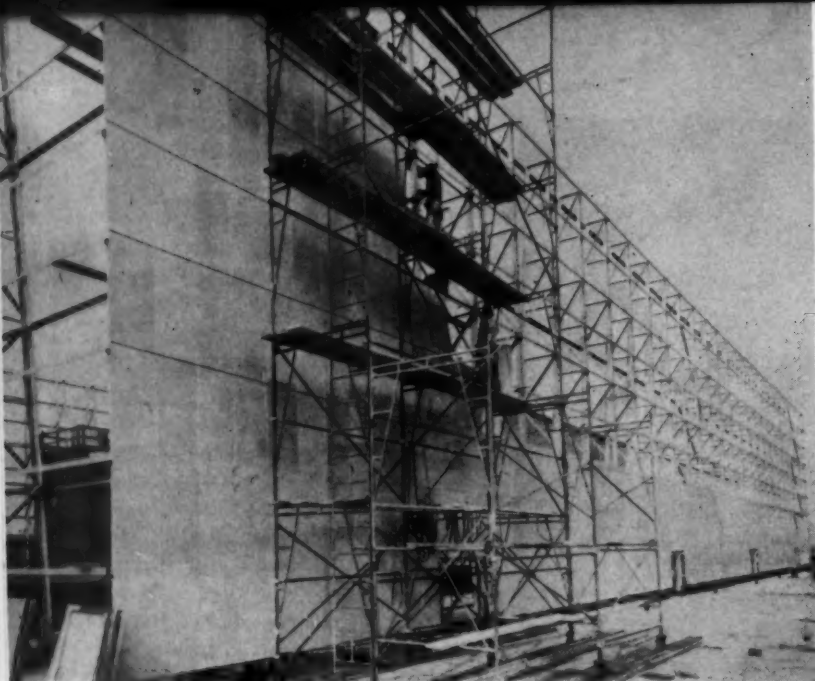
#### Comments on summer market

Brig. Gen. Lawrence H. Whiting, president of the American Furniture Mart, stated "Buyers and exhibitors alike found stimulation in the return of normal market conditions. Better values and a generally satisfactory condition of retail inventories resulted in firm prices among 98 per cent of exhibiting manufacturers."

Wallace O. Ollman, general manager of The Merchandise Mart, was of the opinion that the summer market was "The first normal market we have had in nine years, and in general a very successful one. Buying generally was good, prices were stabilized, merchandise showed a universal return to pre-war quality, and the greatest variety of new patterns ever introduced were available."

#### American Furniture Mart celebrates 25th anniversary

At a dinner commemorating the twenty-fifth anniversary of the American Furniture Mart, held Tuesday, July 12, in Furniture Club of America, Emil Schram, president of the New York Stock Exchange, stated: "The American Furniture Mart, housing so many competitive products, is typically American. It would be inconceivable in a totalitarian state."



*Framework for spectacular was covered with architectural porcelain panels.*

## PEGASUS IN PORCELAIN

**how an architectural dilemma was changed into an outstanding and architecturally harmonious spectacular through the application of ingenuity and versatile material**

*By Malden Grange Bishop* • FINISH CORRESPONDENT

ACCORDING to the myth, when Perseus cut off Medusa's head, the blood sinking into the earth produced the winged horse Pegasus. Later Minerva caught and tamed the great steed and gave him to the Muses, goddesses of the poets.

There have been millions of reproductions of Pegasus. The Flying Red Horse is probably best known as the trademark of General Petroleum for Mobiloil and Mobilgas. General Petroleum has recently put to work the greatest reproduction of them all, a giant "Pegasus in Porcelain" atop their new multimillion dollar building in downtown Los Angeles.

### **Erect four editions of the big Pegasus**

Actually there are four editions of the big Pegasus, one on each side of the building, each  $35\frac{1}{2}$  x  $45\frac{1}{2}$  feet, mounted on a porcelain enamel covered frame work nearly 200 feet above the ground. The horse on the east side, which is partially obstruct-





ed from view by the other buildings, is unlighted. The ones on the north and south sides are outlined in neon tubing. But the one on the west side, which is seen by 100,000 motorists each day, is animated to show the porcelain steed with thrashing wings, galloping hooves, and flying tail, seemingly streaking across the Los Angeles sky at night.

The Red Horse flies between eight-foot-high black porcelain enameled letters, outlined in neon tubing which spell MOBILOIL and MOBILGAS. The tubing for the letters and the eight positions of the horse are the most brilliant ever used in such signs—300 milliamperes. The animation is made possible by an intricate switching mechanism, especially designed, which illuminates each position for .2 second, making a complete cycle in 1.6 seconds. Nearly 5000 feet of neon tubing is used.

Birth of the great outdoor spectacular is the result of what was first an architectural dilemma. When the block-long, 13-story building was complete in design, the architects were pleased with everything except one. They frowned, as all architects do, at the ungainly sight of the elevator shafts, air cooling machinery and other essential building equipment which had to be placed on the roof. They wanted to find a way to hide it all.

Some one hit upon the idea of hiding some of the ugly machinery with a sign. Electrical Products, Inc., of Los Angeles, who design and fabricate electrical displays, were called in on the job. They had ideas of their own, and out of many conferences and nearly eleven months of research came the display which is more than an electrical spectacular, and more than just something to hide something. It is now an integral part

of the beauty of the whole structure.

A steel framework 30 feet high, 132 feet long, and 60 feet wide was erected. The frame was covered with 2 x 4 ft., 16-gauge steel panels—more than 2,500 of them. The panels were porcelain enameled in a one coat job. The enamel coat of stippled terra cotta, of several slightly varying shades, was made to match the terra cotta facing of the building. The job was done so well that at a few feet one cannot tell the difference.

The sheets, the red-and-white Pegasuses, and the black letters were all enameled by California Metal Enameling Company, Los Angeles.

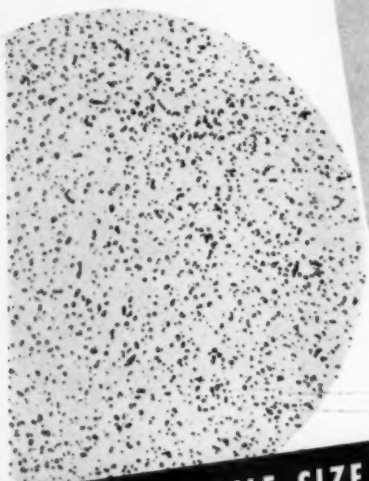
When asked about the choice of porcelain enamel for this particular job, Darrell Ratzlaff, production engineer for Electrical Products, smiled. "We always choose porcelain enamel wherever we can. It's endurance and permanent beauty cannot be beat."



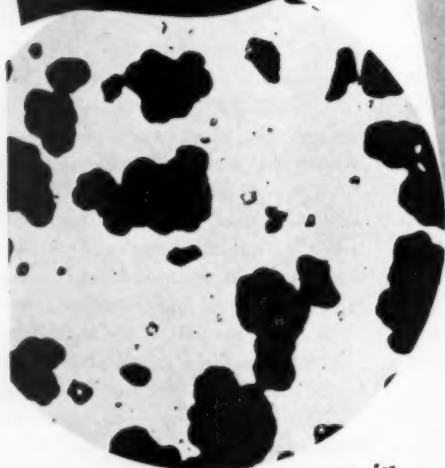
**NEW**

# **TITANOX-TG**

Photomicrograph of TITANOX for  
Pigmentary Use



**NEW PARTICLE SIZE  
HAS 6 ADVANTAGES**



Photomicrograph of TITANOX-TG for  
Ceramic Use

## **makes quality frits FASTER**

Frits made with TITANOX-TG — a new non-pigmentary grade of specially processed titanium dioxide — assure you of all the advantages of the best titania enamels. Equally important, these desirable characteristics of TITANOX-TG will hasten production and cut the costs of making fine vitreous enamels:

### **NEW PARTICLE SIZE**

- Flows easily in the dry state.
- Will not stick or ball up.
- Discharges readily from bins and hoppers. No hard packing.
- Will not sludge out in the smelter.
- Eliminates pre-mixing and hammer milling in dry blending in many cases.
- Reduces warehouse space and charges because of greater bulk density.

### **NEW MAXIMUM TITANIUM DIOXIDE CONTENT**

Assures constantly and uniformly, the outstanding qualities of titanium enamels:

- High acid resistance and high opacity in the same enamel.
- High opacity and reflectance at low application weight of enamel.
- High reflectance and whiteness — easily modified if necessary.
- Adaptability for refiring that makes spot repairing simple and invisible.
- High resistance to abrasion, thermal shock and weathering.

New TITANOX-TG will assure high quality in your frits, speed production and cut costs. Write today to our Technical Service Department for further information. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; 104 South Michigan Avenue, Chicago 3, Ill.; 2600 South Eastern Avenue, Los Angeles 22, Calif. Branches in all other principal cities.

**TITANOX**  
*the brightest name in ceramics*

**TITANIUM PIGMENT CORPORATION**  
Subsidiary of NATIONAL LEAD COMPANY



# Program for annual PEI forum

eleventh annual forum for plant men to be held at Ohio State University

THE annual Porcelain Enamel Institute Forum for plant men, which is held alternately at Illinois and Ohio State universities, is scheduled this year for September 14, 15 and 16, at Ohio State University, Columbus, Ohio.

This educational service, sponsored by the Porcelain Enamel Institute, is dedicated to improving the materials, processes and controls involved in the fabrication, metal preparation and finishing of porcelain enameled products. As is evident from the program, the papers will be presented by practical men selected for their knowledge, ability and authority in connection with the subjects covered.

Participation at the Forum is open to all individuals connected with or interested in the porcelain enameling industry.

Early registration with the Institute for Forum sessions and hotel accommodations is urged. Write to Porcelain Enamel Institute, 1010 Vermont Avenue, N. W., Washington 5, D. C.

## THE PROGRAM

### Wednesday Morning, September 14

9:00 Registration in Social Administration Building

10:30 Meeting of Committees

### Wednesday Afternoon, September 14

Presiding  
Prof. R. M. King  
Department of Ceramic Engineering  
Ohio State University

1:30 Address of Welcome.....Dean Charles E. MacQuigg,  
Ohio State University

Response .....C. D. Clawson,  
President, Ferro Enamel Corporation;  
President, Porcelain Enamel Institute

2:00 Low Temperature Enamel Firing.....P. M. Wheeler,  
Chicago Vitreous Enamel Product Co.

Low Temperature Enamel Furnaces.....Slad Gamble,  
Lindberg Engineering Company

Avoiding Enamel Defects through Proper  
Operation of Furnaces.....M. J. Bozsini,  
Ferro Enamel Corporation

Grit Blasting Sheet Steel Parts for Porcelain  
Enameling.....A. E. Raeuber and E. C. Ploetz,  
A. O. Smith Corp.

### Thursday Morning, September 15

Presiding  
W. H. Pfeiffer  
Materials and Process Engineer  
Frigidaire Division  
General Motors Corporation

9:30 The Evolution of Deep Drawing Lubricants for the  
Porcelain Enameling Industry.....G. A. Cairns,  
Macco Products Company

Emulsion and Alkaline Cleaners.....A. J. Holloway,  
Geo. D. Roper Corporation

Maintenance and Operation of Spray Pickle  
Equipment.....H. C. Ellinger,  
Philco Corporation

Low Pressure Air Atomization  
for Spray Guns.....Marcel Pouilly,  
The DeVilbiss Company

Automatic Spraying of Porcelain Enamel  
.....D. J. Pollingue, Jr. and John B. Verneti,  
Lustron Corporation

### Thursday Afternoon, September 15

Presiding  
Edward Mackasek  
Managing Director  
Porcelain Enamel Institute

1:30 Effect of Mill Additions on Properties of Titanium  
Enamel Cover Coats.....Dr. E. E. Marbaker,  
Senior Fellow, Mellon Institute;  
The O. Hommel Company

Discussion of Control Methods; What Equipment is  
Being used; How Tests are Being Made  
.....George R. Martin,  
Pemco Corporation

Comparison of Porcelain Enamel with  
Organic Coatings.....Dr. G. H. Spencer-Strong,  
Vice President and Director of Research,  
Pemco Corporation

Influence of Training  
on Perception.....Dr. Samuel Renshaw,  
Professor of Psychology,  
Ohio State University

### Thursday Evening, September 15

6:30 Annual Forum Banquet  
Deshler-Wallick Hotel

How We Can Build Good Public Relations for our  
Company and its Products..(Speaker) F. F. Gregory,  
Director of Public Relations,  
A. O. Smith Corporation

### Friday Morning, September 16

Presiding  
Dr. G. H. McIntyre  
Vice President and Director of Research  
Ferro Enamel Corporation

9:30 Board of Experts  
Members of the Board:

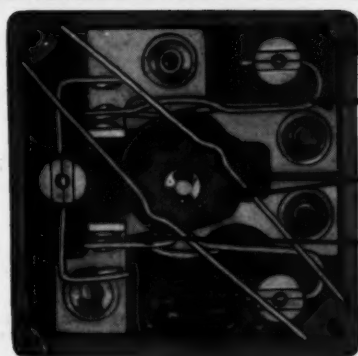
M. J. Bozsini, Ferro Enamel Corporation  
B. D. Bruce, Chicago Vitreous Enamel Product Co.  
L. Camel, Detrex Corporation  
S. Davis, The O. Hommel Company  
W. A. Deringer, A. O. Smith Corporation  
E. E. Howe, Lustron Corporation  
F. A. Petersen, University of Illinois  
W. H. Pfeiffer, Frigidaire Division, General Motors  
F. R. Porter, Inland Steel Company  
M. Pouilly, The DeVilbiss Company  
J. C. Swartz, Westinghouse Electric Corporation  
G. N. Tuttle, Benjamin Electric & Mfg. Company  
J. B. Willis, Pemco Corporation

### Friday Afternoon, September 16

Presiding  
E. E. Howe  
Manager of Ceramic Division  
Lustron Corporation

1:30 Forum will Convene at Lustron Corporation  
1:45 A Description of Enameling Operations  
at Lustron.....H. Starr,  
Lustron Corporation

2:00 Trip through the Lustron Plant  
4:30 Adjournment



Compact—only 1 3/4" square. Permits smallest cluster.

Phosphor Bronze Springs maintain proper tension permanently.

Cam is made of tough, long-wearing plastic, molded to steel shaft.

Large Silver Contacts insure better conductivity.

Recessed Terminals protect against shorting.

One-Piece Molded Bakelite Case; strong, durable.

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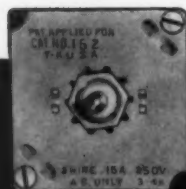


## Now... a new TK SWITCH with 7 Heats... 7 Outstanding Advantages

● Here at last is a new, practical 7-heat switch—a smaller and more compact unit than most present switches. The small size, only 1 3/4" square and 1 5/16" deep, permits better grouping—the smallest cluster of any switch on the market!

Note in the photos above the complete elimination of exposed terminals; they are recessed in the back of the case for added safety, making shorts practically impossible. All materials and workmanship are of the usual TK high quality... phosphor-bronze springs and silver contacts insure lasting dependability.

This new TK 7-Heat switch can add new selling features to your electric ranges. 7 heats give Mrs. Range Buyer a closer and more flexible control over heat—cooking is made easier. Adaptation to your ranges can be made quickly, without disrupting production. Write for complete details on this newest development in electric cooking! (5-Heat switches are also available in this new, compact design.)



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# Designing for sales in 1949

including some basic design rules, suggestions for a cost reduction program and a challenge to the appliance industry to avoid profitless prosperity

By *W. J. Russell* • VICE PRESIDENT IN CHARGE OF RESEARCH AND ENGINEERING DEVELOPMENT, LANDERS, FRARY & CLARK, NEW BRITAIN, CONNECTICUT

THE art of manufacturing and selling under strictly competitive conditions has to be regained, and we have to return to the basic fundamental that all business consists of the creation, production and merchandising of things that other people want, and that the success of any business depends on making the product

## Editor's Note:

In this article, an experienced executive of a well-known appliance manufacturing firm tells why there is more to product designing than just making a product look "pretty." In today's market, "cost" takes on a new meaning to all metal product producers. The author offers suggestions for cost reduction without loss of dependability.

more attractive to the customer than his dollar.

The manufacturer in today's markets must be willing to accept the challenge of the changing economic conditions and the assimilation of high labor and material costs in a product that can exist only in a competitive market by reason of quality, performance, and price. This is especially true in the field of domestic appliances, because the fashion and determination to obtain well-styled and well-designed home equipment is now the prized possession of millions who are as smart as their incomes will permit.

## Designing for cost

A realistic approach to the current problems in the industry would indicate that before we start designing for sales in 1949, we must start designing for cost, and a great many of our problems in designing for sales will be automatically eliminated.

Undoubtedly, the most important

problems now facing design engineers and manufacturers are involved in the production of competitive merchandise at the lowest possible cost. The most successful cost reductions are obtained by designing the cost out of the merchandise, and let me say here and now that the success of such a program depends entirely upon the experience, and ingenuity of all branches of a manufacturing organization, and including the skill and foresight of the sales department in their analysis of the current commercial problems.

In the design of new merchandise or the rejuvenation of existing designs, it is important that the design should incorporate competitive features that will create distinction. That is the difference between various manufacturers' products. It is just as important that those features should be functionally sound in operation and definite in purpose.

Our cost reduction program should eliminate, where possible, those superfluous and extraneous items or "gimmicks" that cannot justify their inclusion in the design, but merely add to the manufacturing cost and the ultimate problem of merchandising. There are certain guide lines in the basic development of merchandise and cost reduction program that should be included in every engineering and commercial development.

1. *An intimate and definite knowledge of the requirements of the trade including the commercial boundary lines of price and quality.*

2. *A thorough and critical analysis of the design and manufacturing cost.*

3. *The adaptation of the design to the existing manufacturing equipment and the careful consideration of installing additional equipment to ob-*

tain additional cost reductions in manufacturing costs.

4. *The educational development and creation of a "cost conscious" manufacturing organization.*

During the past few years, there has been a marked tendency on the part of the buyer to demand deluxe features, finished in lustrous chromium plate with extraneous accessories and "gimmicks" with a secondary regard for the final list price. Manufacturers of domestic appliances and automobiles gladly responded to this "deluxe" fever and served the public on a shining chromium plated platter every conceivable gadget that could be added to the merchandise.

We are now facing a definite change in the habits of the buying



W. J. Russell finishfoto

public. List price has become of primary importance, and we are rapidly returning to an appreciation of price, quality and performance.

Many manufacturers, to their dismay, found that when they stripped the chromium plated accessories from their merchandise, the basic design was of such a nature that it could not carry a competitive list price

without appreciable losses. In short, the deluxe accessories and the "gimmicks" have been paying the way to date, and so it becomes important to analyze the basic design under the light of the new conditions.

#### The principal factors in appliance costs

A realistic cost analysis of the "standard cost" of any major elec-

actions of the various suppliers.

We have encountered the "no can do" suppliers. They listen sympathetically to manufacturers' problems of cost in this new competitive field, they frankly admit that the increases over the immediate pre-war years are excessive, but their own labor and material costs have increased, so there is nothing much to do about it except to pass the in-

to high scrap or rework losses from the finishing section. Experts from the porcelain enamel industry have shown manufacturers how to reduce these losses either by the application of proven process specifications, or the institution of new methods established by recent research.

Service engineers have for many years diligently and patiently demonstrated the importance of control of raw materials and establishment of proper process control in order to achieve the lowest possible finishing costs. Porcelain enamel losses in scrap and rework in the immediate post-war period were tremendous, mainly due to the low grade steels the manufacturers were forced to use and the temporary loss of the art of processing porcelain enamel in high production factories. It is fair to say that the majority of domestic appliance manufacturers have been able to regain the pre-war skill and improve their process control. With the availability of better steel, the losses have been radically reduced. There is still considerable room left for improvement, as there are still too many rejects in finished porcelain goods with the subsequent scrap and rework added to the variance column. Any cost reduction program, to reduce these losses, and to eliminate manufacturing variances, must accept the fact that porcelain enamel is still glass fused to steel and must be designed, handled and packaged accordingly.

Operation, finish, styling and cost are the important ingredients of any design, but the selection of the proper finish for the proper application is the difference in the success or failure of the appliance.

Successful application of porcelain enamel in a design depends greatly upon the appreciation of the basic design rules that must be maintained to obtain the full advantage of a porcelain enamel finish.

#### Basic design rules

The base metal should preferably be a low carbon content sheet steel with a resistance to sagging and warping at enameling firing temperatures, with good welding and drawing qualities, of good surface tex-

#### Comparative Cost Analysis of Finishes

Enameling Steel .0625 — 1 sq. foot	
One ground coat — one finish coat = 100 %	
(150% overhead) 2.55	
2 S Alum. ....	100.5 %
302 Stainless steel ....	390 %
Enameling steel	
Raw .....	57.5 %
1 ground coat — dipped .....	69.2 %
1 ground coat — sprayed .....	80.7 %
1 ground coat — 1 finish coat .....	100 %
1 ground coat — 2 finish coat .....	115 %
Cold rolled sheet steel	
Raw .....	50 %
Japan coat — dipped .....	59 %
White paint — sprayed .....	69.2 %
Cold rolled strip steel	
Raw .....	66 %
Chrome finish .....	168 %

This cost information should be of interest to the appliance designer. The comparison was made on a percentage basis and the actual cost of enameling one square foot of enameling iron 1/16" thick with one ground coat and one finish coat.

trical appliance shows a combination of material, labor, purchased parts and overhead as primary ingredients. Added to the standard cost is that mysterious vampire known as "variance" which usually includes the variance in labor, overhead and inventory. The combination of standard cost and variance gives what is known as a total manufacturing cost.

Unlike many other industries, a high percentage of the standard cost of domestic appliances is represented by material and purchased parts. It is, therefore, obvious that if we are to make any reductions in the total cost of the merchandise, we will require the sympathy and cooperation of the suppliers of material and purchased parts. The majority of appliance manufacturers have found it necessary to institute planned programs to review all purchased materials and all purchased parts with suppliers to determine ways and means of reducing the cost content of bought parts.

It has been an interesting experience to observe the attitude and re-

creases on to the manufacturer. This attitude may be prompted by the mirage of a temporary advantage of a specialized product. It is true to say that the "no can do" type of supplier is very much in the minority.

In contrast, we have the "can do" suppliers who are fully alive to the changed commercial conditions and are approaching the problem in a realistic way. They are instituting definite programs for the reduction of costs in their own plants, and they come prepared to discuss all reasonable suggestions. They have prepared suggestions of their own to the customer, that if certain specifications can be reviewed, and certain manufacturing limitations can be revised, their costs can be reduced. If this type of cost reduction can be obtained, it is progressive and permanent because it achieves the same results of instituting new and lower prices.

#### The relation of metal finishing to cost and design

Many of our indirect costs included in the variance column can be traced



FOR A DEPENDABLE ENAMELING STEEL

# Vitrenamel

• In U-S-S Vitrenamel, enamellers have found the ideal base metal for all porcelain enameling jobs. Vitrenamel is consistently uniform in composition, surface finish, and forming qualities.

For dependable steel sheets, for an increased percentage of OK's on the inspection line, specify U-S-S Vitrenamel porcelain enameling sheets by name. For complete information, write to the U-S-S office nearest you.

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COLUMBIA STEEL COMPANY, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS  
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM, SOUTHERN DISTRIBUTORS  
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

UNITED STATES STEEL



ture and uniformity of composition. The selection of the proper gage of metal is of primary importance if we are to avoid the rejects in enameling due to warpage, hair-lining, and breakage. The majority of major appliance manufacturers have established excellent data on the proper thickness of enamel. This has become one of the most important items in the processing and quality control of finished porcelain enamel goods.

Sharp radii in drawn steel parts should be avoided with an established ruling that a radius should never be below 3/16". Where flanges are used, the minimum flange depth has been established at 3/8" with all corners welded and ground to a smooth finish.

Kitchen and laundry equipment, generally termed major appliances, are predominantly finished in porcelain enamel. The unqualified acceptability by the housewife of this type of finish has been expressed in washing machines, ranges, dishwashers, and kitchen sinks.

In order to meet the functional demands in major appliance design, we must have a finish that will resist high temperatures and thermal shock without discoloration or crazing. This may have to be combined with a hard and smooth acid resistant finish. In applications for kitchen sinks, kitchen table tops, range platforms, we require a permanence in finish and appearance that will resist temperature, domestic chemicals and hard scrub use.

#### Chrome plating

##### for portable appliances

In the field of portable domestic appliances, chrome plated finishes predominate. The tableware industry for many generations has used a solid or silver plated finish, and the modern development of the hard chrome lustrous finish has been universally accepted as the mark of quality of table appliances. In addition to the desirability of matching the existing tableware, modern chrome finishes are serviceable, easily cleaned and generally resistant to normal dam-

age encountered in portability and storage.

Many of the basic rules of good design and fabrication of porcelain enamel parts can and should be applied to other finishes. For instance, it is not economical to chromium plate over raw or sharp corners, nor is it desirable that the flatness of the chromium plated piece should be disregarded, as such irregularities show up very quickly in the finished product. Sharp bends and sharp corners on plated parts create poor adherence to the base metal and establish the possibility of the protective plated finishes being buffed off at the sharp corners.

In "Designing for Sales in 1949" we are designing the future pattern of the industry for many years to come. High government taxes and high labor costs represent an appreciable amount of our total manufacturing cost and yet the product must, of necessity, be designed for price and performance.

Domestic appliances are now accepted as necessary and standard household equipment. They should be designed and built accordingly with dependability of performance and permanence of finish. They should be designed for directness of purpose and simplicity of operation.

The home appliance like any other product is built with labor, material and brains—the more brains, the less labor and material. This seems to present the most attractive ray of sunshine in an otherwise dark economic picture. It is a challenge to our Yankee ingenuity to find ways and means to produce a product that can be purchased by the majority of our people that are supported by the American standard of living.

It is a challenge to our industry and ingenuity to convert the existing process of "dis-inflation" into a healthy and realistic conversion of stable dollar values and to avoid, at all costs, that commercial anemia known as "profitless prosperity".

*Adapted for finish from a talk before the Porcelain Enamel Institute Third Sales Management Conference.*

## FIVE POLIO PRECAUTIONS ARE LISTED FOR PARENTS

Warning that the 1949 polio season is "just around the corner," the National Foundation for Infantile Paralysis today issued a list of precautionary measures to be observed by those in charge of children during the epidemic danger period which usually runs from May through October, reaching its peak during the hot, mid-summer months. The five easy-to-follow health rules for children are:



1. Avoid crowds and places where close contact with other persons is likely.
2. Avoid over-fatigue caused by too active play or exercise, or irregular hours.
3. Avoid swimming in polluted water. Use only beaches or public pools declared safe by local health authorities.
4. Avoid sudden chilling. Remove wet shoes and clothing at once and keep extra blankets and heavier clothing handy for sudden weather changes.
5. Observe the golden rule of personal cleanliness. Keep food

tightly covered and safe from flies or other insects. Garbage should be tightly covered and, if other disposal facilities are lacking, it should be buried or burned.

The National Foundation also listed the following symptoms of infantile paralysis: headache, nausea or upset stomach, muscle soreness or stiffness, and unexplained fever. Should polio strike in your family, call a doctor immediately. Early diagnosis and prompt treatment by qualified medical personnel often prevent serious crippling, the National Foundation pointed out.

The organization emphasized that fear and anxiety should be held to a minimum. A calm, confident attitude is conducive to health and recovery. Parents, it said, should remember that of all those stricken, 50 per cent or more recover completely, while another 25 per cent are left with only slight after effects.

If polio is actually diagnosed, contact the chapter of the National Foundation for Infantile Paralysis serving your community. The chapter will pay that part of the cost of care and treatment which patient or family cannot meet.

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**PRODUCTION**  
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Now is the time to consult with Monarch's engineering staff regarding the expansion of your production program. Whether it be just a few small stampings or a completely assembled and packaged unit, Monarch's modern facilities and skilled craftsmen are ready to assist you. Dies, jigs, fixtures, assembly and packing — ours is a complete From-Blueprint-To-Shipping-Carton Service.



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DES MOINES 9, IOWA

**In 80 seconds  
washer tubs  
come clean  
prior to  
enameling  
...with  
PENNSALT  
METAL  
CLEANERS**

When a huge press throws a 1000 ton punch into 18 gauge steel, it really pounds the drawing compound into the steel surface. In other words, a tough cleaning job pops up.

Yet 80 seconds' spray treatment with Pennsalt Cleaner solutions enables Heintz Mfg. Company to dig that soil out . . . leaving these home washer tubs clean and ready for the pickling and porcelain enameling operations.

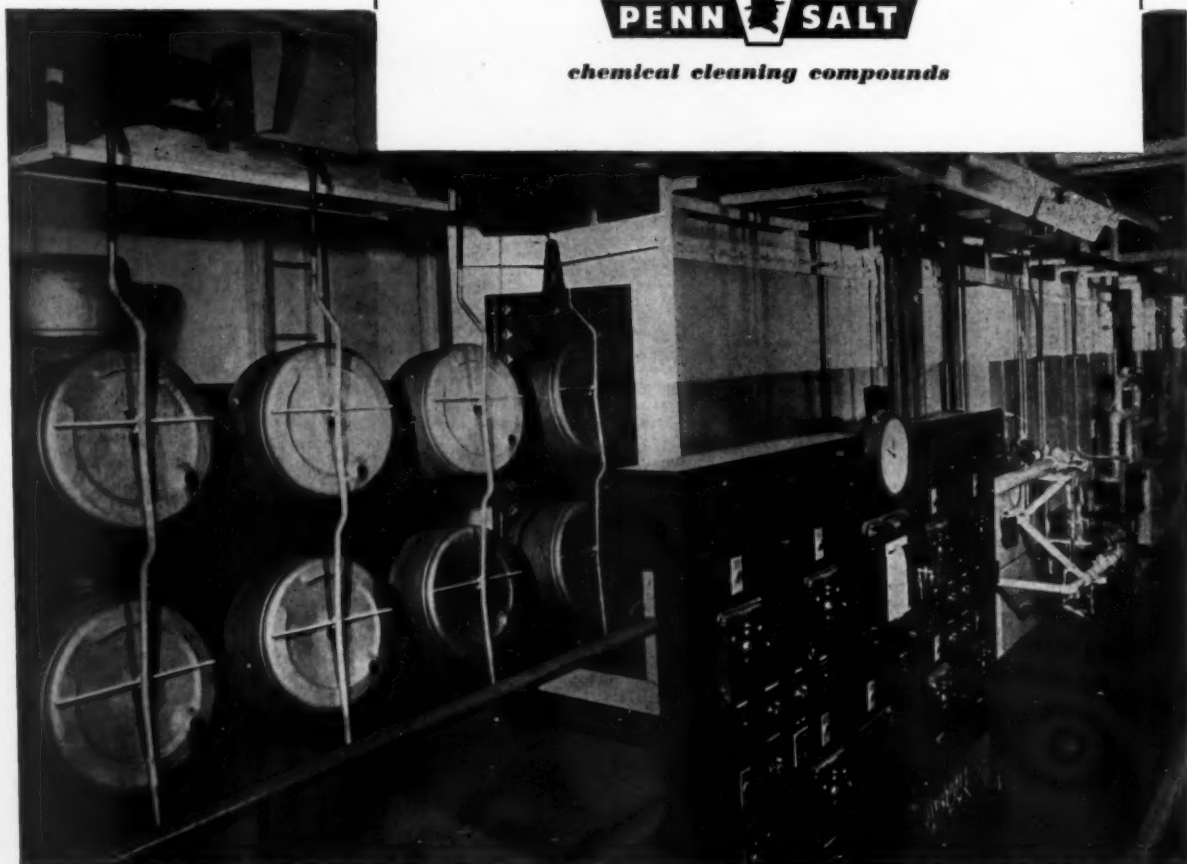
In this method, Pennsalt EC-12\* and Pennsalt\* 30 have done such a fast, efficient job that Heintz has had no cleaning rejects since the installation was made.

Satisfactory cleaning like this is being enjoyed all over the country by plants using Pennsalt Cleaners. Call in your Pennsalt representative, he'll be glad to discuss with you savings of time and money with Pennsalt's complete line of metal cleaners. Special Chemicals Division, Pennsylvania Salt Manufacturing Company, Philadelphia 7, Pa.

\*REG. U. S. PAT. OFF.



**chemical cleaning compounds**





ciety to the Institute of Industrial Engineers and Engineers, the Industrial Manufacturers Society and the Society for the Advancement of Manufacturing.

# NEWS

W. A. Barlow's Portland Cement Company announces the addition of Charles H. Gebb to the organization. Mr. Gebb (Gebby to architectural

Each set is exhibited under individual filters and labeled C-20, and in a permanent, hinged-top box.

Edgett's southern face (left) including... In the general view new "Edgett" factory at... Edgett's 50... plant a complete new car... 1001 long by 1101 wide. According to company... the new building... equipped with an... for... problem.

## Stewart-Warner enters machined parts contract field

Entry of the South Wind Division of Stewart-Warner Corporation into the custom production of finished machined parts, and the appointment of a field representative to procure contracts for parts, fabrication and light assembly services, have been announced by W. E. Judd, general sales manager of the division.

## Hix Jones heads YS&T Detroit office

Robert J. Mullally, district sales manager in charge of the Detroit office of the Youngstown Sheet and Tube Company, has retired and has been succeeded by C. Hix Jones, formerly assistant to Mullally.

In 1935, Jones joined the Youngstown organization after nearly nine years with Armco. That same year he was appointed assistant district sales manager in Detroit and held that post until his recent advancement.

## Screen process association's first convention set for November 7-9

The Screen Process Printing Association has announced that plans have been completed for its first convention and exhibit to be held in Hotel Cleveland, Cleveland, Ohio, November 7, 8 and 9.

Coincident with the announcement, the Association announced the appointment of Bert Zahn, of T. J. Ronan Co., Inc., as acting manager, replacing Edgerton Hart, of Byrne

Marcellus Co., and also Zahn's appointment as convention chairman. The Association is rounding out its first year of operation.

## William Harshaw honored by Western Reserve U.



William J. Harshaw, president of The Harshaw Chemical Company, Cleveland, Ohio, was awarded the honorary degree of Doctor of Science by Western Reserve University, on June 15. The degree was given in recognition of his scientific discoveries in the fields of ceramics and electroplating.

## New Vitro sales representative

Edward J. Porter has been added to the sales staff of Vitro Manufacturing Co., according to an announcement by A. J. Strod, Vitro president, who announced that Porter will be stationed in Chicago and will represent the firm in Illinois, Michigan, In-

diana and Iowa. Porter attended Northwestern University, and previous to his new position was purchasing agent for Dearborn Glass Company.

## Philco advances Carmine

James H. Carmine, vice president—distribution for the past two years, has been elected executive vice president of Philco Corporation, it was announced by William Balderston, president.

## Wolfram to head research project

A research project to investigate gases which are evolved during the firing of ceramic ware has been established by the Edward Orton, Jr. Ceramic Foundation at the Department of Ceramic Engineering at Ohio State University.

H. G. Wolfram, former vice president of Pemco Corporation, manufacturers of porcelain enamels, has been named a research associate in the Department to carry on this work. Present plans call for a year's work on the problem.

The gases to be investigated include those which cause blisters, bubbles in glazes, and other similar defects in fired ceramic ware. Mr. Wolfram will try to find the sources of these gases as well as the phenomena causing or preventing their expulsion during firing. Work on the project will be carried on both in the Department of Ceramic Engineering and in the laboratories of the Orton Foundation.

## Inca Metals purchases National Metal Products Co.

Purchase of National Metal Products Co., of Carrollton, Texas, manufacturers of strip steel furniture, by Inca Metal Products Company, of Birmingham, Alabama, and the movement of Inca operations and key personnel to the new Texas location, has been announced by Edward M. Quintana, founder of Inca and now president of the enlarged operation to be known as Inca Metal Products Corporation of Texas.

The new corporation will continue

to manufacture the Inca line of metal kitchen bases, utility cabinets, sink cabinets, and utility tables, and cer-

tain strip steel furniture items of the National line.

### Ferro furnace school graduates 36



Gathering at Hotel Carter, in Cleveland, Ohio, for the second annual Ferro Furnace School, June 7 and 8, thirty-six porcelain enamellers participated in discussions concerning all phases of continuous and box furnace operation as well as operation of other equipment in the enamel shop.

A panel of speakers led by Elmer W. Dany, Ferro chief engineer, covered such subjects as furnace maintenance costs, radiant tubes, temperature gradients and furnace atmosphere, combustion and controls, instrumentation, refractories, recuperators, drying of enameled ware, mill room maintenance, spray booth maintenance, and pickle room maintenance.

Other speakers included E. W. Weaver, ass't chief engineer, Surface

Combustion Corp.; C. E. Sladky, North American Mfg. Co.; S. R. Illes, Hays Corporation; W. H. Henson, manager — sales engineering, Norton Company; and Harry M. Brown, sales manager, Patterson Foundry & Machine Company. P. S. Gruber, B. L. Gamble, R. C. Dickey and M. Bozsos, all of the Ferro staff, also led discussions on various phases of the program.

Students attending the school came from Ontario, Canada; Chicago, Kankakee, Granite City, and Jacksonville, Ill.; Gardner, Mass.; Dayton, West Lafayette, Salem, Mansfield, and Alliance, Ohio; Milwaukee, Wis.; Kalamazoo, Greenville, and Muskegon, Mich.; Evansville and Kokomo, Ind.; New Britain, Conn.; and Long Island, New York.

### Perfection acquires Acorn, Oriole range interests

In a surprise deal, Perfection Stove Company recently acquired the patents and trade names of the Acorn and Oriole range lines manufactured by Standard Gas Equipment Corp., of Baltimore, Md., along with certain other physical assets of the Baltimore firm.

Included in the purchase is the exclusive right to manufacture and market Oriole and Acorn gas ranges. The line includes 20 models, including CP and apartment-size ranges.

Tools, dies, jibs and molds acquired in the deal are being shipped to Cleveland, Ohio, where

the production of the Oriole and Acorn lines will be undertaken immediately. They will be manufactured along with Perfection's own gas and kerosene ranges and cook stoves in the company's newly-expanded Ivanhoe Road plant.

This business deal links the products of two companies having a combined total of almost 200 years experience in the stove manufacturing business. Perfection initiated its manufacture of kerosene cook stoves more than 61 years ago, and just a few months ago entered the gas range field with three new models.

Standard Gas Equipment had been making the Acorn range since 1830, the Oriole model since 1911.

L. S. Chadwick is president of Perfection, C. H. Foulds, vice president—sales, and C. A. Blackburn, vice president—manufacturing.

### Globe Chemical appointment

In an expansion move to promote sales for its Globrite Products Division, the 80-year-old Globe Chemical Company, of Cincinnati, Ohio, has announced the appointment of Henry D. Fischer, Jr. as division sales manager. A graduate of the University of Cincinnati, he has been associated with chemical cleaning and processing for a number of years. Globrite products include a variety of industrial and other cleaning compounds.

### New general manager of sales at Lustron



Appointment of W. A. Matheson as general manager of sales for Lustron Corporation, of Columbus, Ohio, has been announced by Frank L. Sundstrom, vice president—distribution.

Prior to his new appointment, Matheson was executive vice president of Eureka Williams Corp., of Bloomington, Ill., and had been president of Williams Oil-O-Matic Co. He was formerly sales manager of Hart Oil Burner Co., and twice served as president of Oil Heat Institute of America. From 1936 to 1940, he was general manager of the

New York office of Delco Frigidaire Division of General Motors.

#### **Electric Truck Assn. moves offices to Philadelphia**

Announcement has been made of the removal of the executive offices of The Electric Industrial Truck As-

sociation, formerly at Long Island City, N. Y., to the Beury Building, 3701 North Broad St., Philadelphia 40, Penn.

William Van C. Brandt, for many years connected with Electric Storage Battery Company, Philadelphia, is the new managing director, and also secretary-treasurer of the Association.

#### **Frigidaire-Pemco team up to promote porcelain enamel**



Frigidaire appliance dealers in the Baltimore-Washington district had an opportunity to hear and see how porcelain enamel is used and made just prior to the release date for advertising of Frigidaire's new all-porcelain enameled refrigerator and in conjunction with Frigidaire dealer meetings held to announce a new automatic washing machine which is porcelain enameled inside and out.

The demonstration was presented to district dealers at meetings in Baltimore, Washington D. C., and Milford, Delaware, by Pemco Corporation, of Baltimore, Md.

Talking to the dealers, Howard N. Williams, sales promotion manager for Pemco, pointed out that according to current surveys, Mrs. Average American Housewife looks for quality, economy, and beauty when she shops today. He said "One of the most important selling features of any household appliance, and one that is so often overlooked by dealers, is the interior and exterior finish of appliances and that is why it is important for any person selling appli-

ances to be familiar with the finish used on his appliances."

According to Williams, "there is no finish other than porcelain enamel that offers these advantages: It's beautiful—no other finish has its gleaming lustre or rich coloring. It's permanent. It never fades. It stays new. It's burn-proof. No scalding foods, hot vessels, or cigarettes can mar it. It's easier to clean and to keep clean. Its glass-smooth, sanitary surface wipes clean with a damp cloth. It's scratch resistant. Its steel-hard surface resists blows. Porcelain enamel is stain resistant—no ordinary household acids can leave an unsightly mark."

To emphasize his statement, he staged comparative tests on porcelain enamel and other finishes, saying that one of the reasons why porcelain enamel could offer these advantages was because it is the only finish that is literally "burned into", not baked onto, the metal surface; thereby forming a lifetime bond of glass fused into metal. A feature of the demonstration was the actual firing or "burn-

ing on" of the porcelain enamel to the steel in a model furnace, operated by George Martin of the Pemco service department.

In concluding the demonstration, Williams told the dealers about the porcelain enameling industry's recently formed "National Safe Transit Program" which is designed to reduce damage of porcelain enameled appliances due to shipping and packaging and which has been subscribed to by leading appliance manufacturers, railroads, railway express, and industry associations. He also briefly reviewed the progress made by the manufacturers of porcelain enamel since the beginning of the war, pointing out that the porcelain enamel in use today is far superior to any used in prewar manufacturing.

In summarizing the program, J. A. Mitzelfelt, district manager of Frigidaire's Baltimore-Washington branch, emphasized the fact the Frigidaire is the only appliance manufacturer in the United States offering both an all-porcelain enameled refrigerator and an all-porcelain enameled washing machine.

#### **Reorganized acid-proof products firm opens new plant**



*C. R. Payne*

Electro-Chemical Supply and Engineering Co., of Paoli, Penn., one of the oldest firms in the acid and corrosion proofing field, has announced a complete reorganization. In addition to existing facilities, a new plant with 16,000 square feet of floor



space, at Emmaus (Allentown), Penn., was put in operation July 1. Activity includes the manufacture of acid-proof cements, and engineering acid-proof construction.

The officers of the firm are: Dr. C. R. Payne, president; J. Wm. Grant, vice president and sales manager; Wm. A. Seshier, treasurer and production manager; Walter L. Sheppard, Jr., advertising manager and export sales manager.

D. L. Markle, Jr. has been appointed district sales manager in charge of the New Orleans office of The Youngstown Sheet and Tube Company, succeeding Orville B. Ewing who died recently.

#### Special package stands three ocean trips



An American-made electric roaster is on the job in Tokyo after crossing the Pacific Ocean three times and finally reaching its destination in perfect operating condition and without a mar to its gleaming finish.

A wooden box was constructed to hold the roaster, but the total weight of the package exceeded parcel post limits. Yet a strong and sturdy container was required. The problem was solved when a specially designed box was made by hand with 1/6" rotary cut lumber, five binding wires, and all-bound ends. The roaster was in a corrugated container, which was "over-packed" in the wirebound.

The package originally was shipped from San Francisco to Lt. Col. and Mrs. Stebbins Griffith, in Nanking, China, but was returned because he had meanwhile received evacuation orders. By the time the packaged

roaster had returned to San Francisco, Col. Griffith had been transferred to Tokyo—so once more the roaster, still in its original hand-made shipping container, was re-shipped. This time, the Griffiths and

the roaster made connections. They reported that it reached them in perfect condition and that the box, too, was still sound and sturdy, and apparently ready and able for more ocean journeys as general cargo.

#### Joe Irwin joins Punderson firm as "Jojine Products Division"



The V. B. Punderson Co., Cleveland, Ohio, manufacturers of industrial cleaners, neutralizers and drawing compounds, has announced that Joe Irwin has joined the firm as the "Jojine Products Division."

Jojine's industrial product is a liquid addition agent for sulfuric or muriatic acid pickling baths which tends to accelerate the action of acid

on metal, thus speeding up pickling operations.

Irwin is well known through the enameling industry. One of his recent contributions is the "slump test" used for control of enamels for spraying. Prior to his new connection, Irwin spent three years with Clyde Porcelain Steel, three years with Revere Copper and Brass, 15 years with Ferro Enamel Corporation, and three years with James H. Herron Company.

While with Ferro Enamel, he was assigned to a number of special projects, including about three years with an electrical pickling project working in major steel plants, and an overseas trip to Holland where he assisted in getting the first foreign smelters in operation.

Leroy A. Johnson, for the past 12 years with the research division of Chicago Vitreous Enamel Product Company, has been made a service engineer, according to an announcement by A. S. Ault, manager of sales and service.

#### Gas utilities gain in total revenue, sales and customers in first quarter of 1949

Gas utility companies registered gains in total revenues from sales in the number of customers served and in total volume of sales in the first quarter of 1949 compared with a year ago, the American Gas Association has reported.

Total revenues from sales of gas by utilities in the first quarter were \$535,000,000, an increase of 6.9 per cent over the comparable 1948 period. Revenues from industrial sales rose 15 per cent, while residential and commercial revenues gained 4 per cent and 11 per cent respectively during the period. For the twelve months ended March 31, total revenues from sales by gas by all utilities were \$1,579,000,000, an increase of 9 per

cent over total revenues in the previous twelve-month period.

#### New president for Gunnison Homes

Gen. John J. O'Brien, who was in charge of Army real estate during the war, has been elected president and general manager of Gunnison Homes, Inc., of New Albany, Ind. The company, a leading manufacturer of prefabricated homes, is a U. S. Steel subsidiary.

Foster Gunnison, founder of the firm and president since 1935, has been elected chairman of the board. Wm. B. Eagles, general sales manager, has been elected vice president.

to Page 54 →



## CONTROL on the ice...and in the making of... **PORCELFRIT**

● You've got a special problem a special use for frit. So you ask us to work it out for you.

### 5 OTHER GOOD REASONS

1. **EXPERIENCE**—Since 1901 Ing-Rich has pioneered in porcelain enameling. We have learned a lot in that time—and our customers profit by it.
2. **PLANT TESTING**—Right in our own job enameling plant, under conditions of actual use, we use PORCELFRIT. When you get it, it's right.
3. **IMPROVED SMELTING**—Ing-Rich uses unquestionably the world's finest smelting method, the result of exhaustive research and experiment.
4. **FEWER REJECTS**—Now that we're back on a buyer's market, you have to watch your rejects. PORCELFRIT cuts them to a minimum.
5. **SERVICE ENGINEERING**—Our Service Engineers are available to make sure that PORCELFRIT works right for your product. You take no chances.

First, there's the research laboratory, where raw materials, colors, types of frit are thoroughly tested, the right ones are chosen, and your particular kind of PORCELFRIT is developed. Every step is *controlled*.

But then do we ship it off to you? No, sir! Before you ever see it, it goes into our own enameling department, where it meets the tests of actual use, again under constant *control*. The result is a frit that's *laboratory* right and *plant* right. Your special PORCELFRIT has met the conditions it was designed to meet—"plant tested" and sure of results!



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# CUT ENAMELING COSTS

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1. Wear points built to withstand abrasion.
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11. Simplified design with minimum number of parts assures long life and less maintenance.
12. Positive piston action provides instant response.
13. Compact for convenient mounting in close quarters.
14. Easily serviced.
15. Universal clamps and extensions provide flexibility in mounting.

A DeVilbiss engineer can prove to your complete satisfaction that these features will increase production, improve product quality and lower operating costs. A consultation with him at your convenience entails no obligation whatsoever.

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## Pacific Coast enamellers

discuss new ceramic school

By *Malden Grange Bishop* • CORRESPONDENT

**B**USINESS and monkey business was the pleasure of 53 members of the Pacific Coast Enamellers Club at their regular meeting, June 24, in Los Angeles, in a private dining room of the sprawling Rodger Young Auditorium.

After inch-thick ham steaks the business began with balloting for the new officers for the 1949-50 season. While the election committee, headed by M. E. Blackburn, counted the votes, two special guests were introduced. James B. Willis, service manager, Pemco Corporation, took a bow, as did Dr. Joe Pask, professor of ceramic engineering, University of California at Berkeley.

Howard Burlingame (California Metal Enameling) then led a discussion on the club's participation in the regional meeting of the American Ceramic Society scheduled for October 19, 20 and 21, at the Ambassador Hotel, Los Angeles. The club decided to present a full-day's program for the porcelain enamel section on the 20th. Although final details were left to a committee,

papers will be presented on "Color Combinations in Titanium Enamels," "Opacifiers," "Shop Production Costs," "Spraying Equipment," and other subjects.

Chairman Blackburn then announced the results of the election by introducing the new officers. Joe Disario (Smoot-Holman), who was vice president last year, becomes the new president. Howard Burlingame (California Metal Enameling) is the new vice president. D. L. Bohon (De-Vilbiss) remains for the third time as secretary-treasurer, and H. W. Niece (California Metal Enameling) becomes the new publicity secretary.

At the insistence of interested members, Dr. Pask made an informal report on the progress of the new School of Ceramic Engineering being established at the University of California. The new school began only last September at the Berkeley campus. Courses will be started this September at the Los Angeles campus. It is expected that laboratories will be completed during the summer.

Although the problems have been

many and complex, Dr. Pask is confident that the University will soon be furnishing a valuable service to the ceramic industries. Research projects on materials, particularly California-found materials, are being established. Process engineering and production engineering curriculums are being offered.

At the time it is not planned to offer a separate course in porcelain enameling; enameling will be carefully covered in combination with other branches of the ceramic school. This is not an indication of the lack of interest in the particular problems of porcelain enamellers, he hastened to explain. Rather it is because the Pacific Coast's enameling industry does not yet require many new engineers each year.

Dr. Pask said that the primary purpose of the school was to serve the ceramic industries and he not only welcomed but was constantly seeking the suggestions of the people in each of the branches. Among the suggestions offered from the floor were research projects for new material compositions which would open up new markets for enamellers, projects which would make new industries conscious of new applications of porcelain enamel, particularly the aircraft industry with its guided missiles and jet propulsion programs, and the general suggestion that more and better trained engineers was a healthy thing for porcelain enamellers.

In connection with the discussion of problems of enamellers, Roy Armour (Chemical Process & Engineering) resorted to some monkey business with a report that a local enameller (name withheld) found himself beset with so many problems that he worked night and day. One day he suddenly and violently yanked his desk from the wall and dragged it down the hall and into the men's room. He then carried his records and books into the room and set up business there.

When the president of the company learned what had happened he feared that his best engineer had "blown his top." He called the best psychiatrist in town. The psychiatrist came and after a talk with the

Left to right: Al Sattler, U.S. Porcelain; Jim Willis, Pemco; Howard Burlingame, CAMEO; and Dr. Joseph Pask, University of California.



man was completely baffled. The man seemed to be entirely normal, and the psychiatrist demanded to know the reason for his strange behavior.

"Look," replied the engineer, "this is the only place I know where you can be reasonably certain that when a man comes in he has his mind made up as to exactly what he wants to do."

Since the moving of desks seemed to be the answer to most ename- lers

problems there was nothing else which could be discussed. So President Sattler turned the lights out and the members enjoyed a motion picture on football.

## NEWS

→ from Page 50

sales. The new officers will undertake an expansion program designed to enlarge the Gunnison dealer organization on a national basis and to step

up research and product development.

Currently, the company has dealers operating in approximately 360 cities and towns extending from the middle Atlantic states to the Rocky Mountains, and from the Canadian border to the Gulf of Mexico.

Early this year the company placed on the market its new "master" homes. These sold in three sizes ranging from 2 bedrooms and bath to 3 bedrooms, dining room, and bath. The dealers' retail erected prices for the master homes range from \$6,800 to \$8,300, not including land. Homes include modern kitchen cabinets, heating equipment, plumbing, etc.

## Ed Greenstreet dies



Edward C. Greenstreet, eastern district manager of Chicago Vitreous Enamel Product Co., died June 15 following a heart attack. Ed was well known throughout the industry having been in the porcelain enamel field for many years. He was with Baltimore Enamel Novelty from the middle twenties to the early thirties. He then joined Standard Gas Equipment Corporation, Baltimore, and was with that firm until he joined the Chicago Vit organization in 1937 as a service engineer.

## Syracuse 14th ceramic exhibition set for Oct. 29 to Dec. 4

The 14th National Ceramic Exhibition at the Syracuse Museum of Fine Arts will be held in Syracuse, N. Y., from October 29 through December

FOR MORE EASILY CONTROLLED, MORE STABLE COLORS  
IN BODIES, GLAZES AND ENAMELS



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High TiO<sub>2</sub> Content

Orefraction Rutiles are used in enamels to produce acid resistance without the refractory effect of silica. In colored enamels fairly high percentages may be added.

When used as a mill addition, colors obtained are from cream through dark tan depending on the quantity added to the basic enamel composition. Amounts up to 2% tend to reduce crazing in glazes.

When you specify "Orefraction" you are assured pure and clean Rutiles, high in TiO<sub>2</sub> content, prepared under exclusive separation and beneficiation methods.

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**OREFRACTION  
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4, according to an announcement by Oscar F. Soule, president of the museum.

**Florence Evert heads T&K home economics department**



H. F. Bond, vice president—sales for Tuttle & Kift, Inc., has announced the appointment of Miss Florence Evert as director of the company's newly established home economics department.

Miss Evert, a graduate of Purdue University, was recently with Philco Corporation. She will be in charge of familiarizing the home economics departments of utilities, educational institutions and range manufacturers with the company's line of cooking units for electric ranges.

**Floyd-Wells appointment**

The Floyd-Wells Company, Royersford, Penn., has announced the appointment of Jesse D. Day, Jr. as district manager for their eastern Pennsylvania and Delaware districts. Day was associated with Roberts & Mander, Hatboro, Penn., for over ten years.

**Koppers president elected to Carborundum board**

General Brehon Somervell, president of Koppers Company, Inc., was elected a member of the board of directors of The Carborundum Company at a meeting of the board, H. K. Clark, president of Carborundum, announced recently.

finish AUGUST • 1949

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Jervis B. Webb Company builds every type of conveyor as well as Overhead. There is a combination that will save you more. Let us plan with you. Our 30 years' experience qualifies us to handle any job.

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OFFICES IN  
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## New Supplies and Equipment

### H-21. Transparent saw guard gives complete visibility

A new transparent guard for circular saws of 8 to 20 inches diameter is said to keep the blade covered at all times, yet allows the operator an unimpeded view of saw and work.

A pin arrangement allows the guard to be held in a vertical position, for adjustment or changing of blades, yet ready to be lowered instantly. It is claimed that there is no possibility of the guard's being removed and not replaced.

### H-22. Conveyor strapping unit for speedy packaging

It's easy to adapt a packaging conveyor to a fast, efficient strapping method. All one needs to do is insert a conveyor strapping unit into the production line.

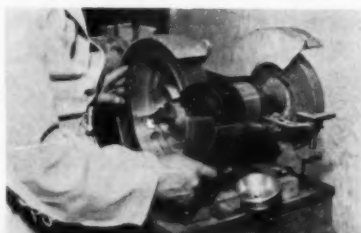
Different models of the unit are available to suit varied needs. Each unit consists basically of a roller section to which has been fastened a rigid mount and quick-change bracket for the strapping tool.

Easy installation is possible either in the main conveyor line or at a right angle to it. Countersinking of the unit in a packaging table or bench may also be accomplished without difficulty. A high degree of strapping efficiency is said to be attained when the unit is utilized in its complete form.

### More Information

For more information on new supplies, equipment and literature reviewed here, fill out the order form on this page.

### H-23. New type drum sander uses abrasive strips



A new type drum sander uses ordinary strips of abrasives which may be purchased in utility rolls instead of in "endless belt" form.

The new sander is a balanced aluminum split drum, cushioned with rubber, the halves of the drum being locked into a solid drum by a cone type washer. Light weight makes it highly adaptable for use with a flexible shaft as well as on a stationary arbor. Abrasive cloth in

various grits can be quickly interchanged on the same drum to accommodate rough or fine work.

## NEW LITERATURE

### 801. Portfolio on steam cleaning

A portfolio on the subject of steam cleaning to aid industrial plants in obtaining the utmost efficiency in their steam cleaning operations is available to personnel of industrial plants. The many applications of steam cleaning and its place in economical plant maintenance are discussed.

### 802. Booklet on complete finishing equipment

A new 12-page booklet, "Mahon Industrial Equipment," covers complete finishing systems for enamel, lacquer, paint and varnish; spray pickling equipment, metal cleaning and rust proofing equipment, drying ovens, filtered air supply systems, hydro-filter spray booths, dust collecting systems, and numerous units of special production equipment.

### 803. History of laundry industry

This history of the laundry industry from its origin in 1829, to 1949, is traced in "Allegheny Metal in the Laundry Industry," the latest in a series of booklets published on stainless steel in various industries.

### 804. Catalog on gearmotors

A new 12-page book features Link-Belt gearmotors and replaces all previous catalogs on this subject. Double and triple reduction units of new design, with motor mounted concentrically in line with the output shaft, are illustrated and described. Dimensions are shown for gearmotors having open drip-proof, splash-proof, totally enclosed and explosion-proof motor enclosures.

**FINISH**  
360 N. Michigan Ave.  
Chicago 1, Illinois

Please forward to me at once information on the new supplies and equipment and new industrial literature as enumerated below:

No. \_\_\_\_\_ No. \_\_\_\_\_ No. \_\_\_\_\_ No. \_\_\_\_\_

No. \_\_\_\_\_ No. \_\_\_\_\_ No. \_\_\_\_\_ No. \_\_\_\_\_

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Company Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

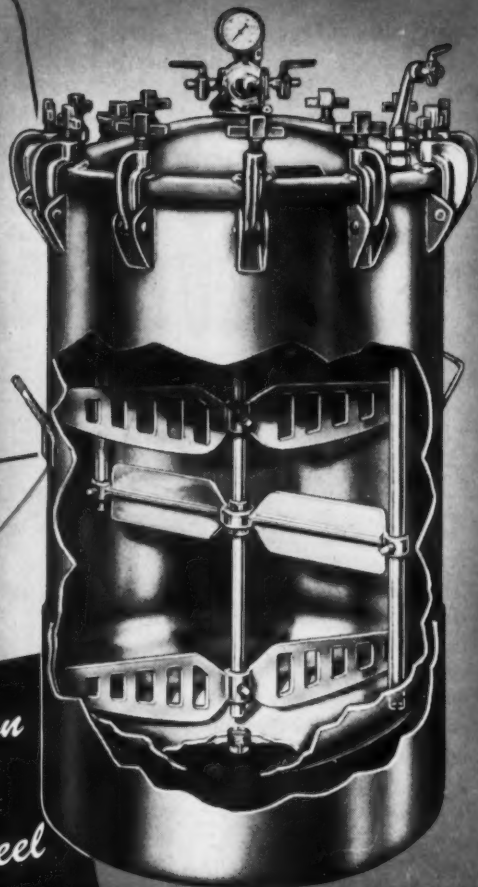
a new  
**CORROSION-PROOF**  
pressure material tank  
**FOR CERAMIC FINISHES**

"If it's made by Binks, it's made right".

*J. Roche*  
President

The shell, head and paddles of this Ceramic material tank are made of strong, durable copper silicon alloy. The agitator shaft and the material tube are of stainless steel. Both air and electric driven motors are available for the agitation of this tank.

*Copper silicon  
alloy and  
stainless steel*



Binks designed this exceptional pressure material tank especially for ceramic finishes. All parts are of corrosion-proof materials, manufactured to the usual high Binks standards. There are no coatings or platings used in this tank. These would wear off in time and cause trouble. All parts are corrosion-proof all the way through. Rust cannot form in this tank! There is no chance for impurities to get into the frit.

The additional cost of this special tank is a small premium to pay for complete and permanent protection against the formation of rust which may spoil an entire tank of costly frit. The superior agitation equipment of this tank keeps the frit of uniform consistency. This, coupled with the corrosion resistance of the tank, greatly reduces the number of rejects . . . and results in still further economies.

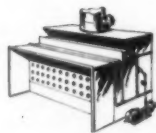
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**Ceramic  
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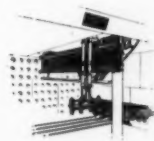
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Send now for your free copy of our new Catalog-Data book which fully describes our new pressure material tanks and other ceramic finishing equipment.



#### Open House at Pennsalt's new plant

Pennsylvania Salt Manufacturing Company introduced its new \$2,000,000 chemical plant at Calvert City, Ky., June 21, with an open house attended by more than 1500 people.

Visitors were presented with a specially prepared booklet entitled "Progressive Chemistry for 99 Years."

Besides a brief history of the company and pictures of its eight plants and main laboratory at Whitemarsh, Pa., the booklet contained a letter from George B. Beitzel, president of Pennsalt, and a special letter of greeting from James McWhirter, superintendent of the new plant which will produce hydrofluoric acid.

cently with Hotpoint, Inc., Chicago, and prior to that with Clyde Porcelain Steel, Clyde, Ohio, for 13 years.

#### Mel Gibbs to Inland Steel

Word has been received by *finish* that Melvin Gibbs, formerly with American Stove Company, Harvey, Illinois, is now associated with Inland Steel Company, Indiana Harbor, Indiana, as ceramic engineer.

#### Hissick to 1900 Corp.

The Nineteen Hundred Corporation has announced the appointment of William H. Hissick as superintendent of its new plant at St. Joseph, Michigan, in which washers and dryers are being made.

Hissick, with long experience in the home laundry equipment industry, joined the St. Joseph firm from General Electric Company's division in Bridgeport, Conn. He gained his first experience in the tool room, and through the years advanced to become superintendent of the G.E. home

#### Three appointments at Ingersoll-Steel



Colantonio



Fleming



Pargeon

The appointments of Adolph Colantonio, as divisional manager of four departments including tub form and enamel, Charles Fleming, as manager of the enamel shop, and Robert Pargeon, as enamel shop foreman, have been announced by R. C. Inger-

soll, president, Ingersoll-Steel Division, Borg-Warner Corporation, West Pullman, Ill.

Colantonio joined Ingersoll in 1946 as an engineer. Fleming was recently with Crosley Division of AVCO Mfg. Co., Nashville, Tenn. Pargeon was re-

## Skelnor Process de-enameling

FIRST COMMERCIAL INSTALLATION FOR PORCELAIN DE-ENAMELING

Our process will save your valuable parts from the scrap pile.

De-enameled parts come back to your plant clean and ready for the pickle room — no sand blasting or "touch up" necessary.

Long experience in serving the largest producers of porcelain enameled products places the Skelnor Process out-in-front.

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Call us in to see your rejects. We can tell you whether you can save money through de-enameling.

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laundry division. He is a graduate of Bridgeport Engineering Institute.

#### Kennally named president of Philco's Electromaster division

Thomas A. Kennally, vice president and assistant to the president of Philco since January, 1948, has been named president of the firm's Electromaster electric range division, according to an announcement by William Balderston, president of Philco Corporation. Kennally, who will also continue to serve as an officer and director of Philco and as a member of the company's management committee, joined Philco in 1924.

Since Philco acquired the assets of Electromaster, Inc., to enter the electric range field early this year, Kennally has devoted much of his attention to the integration of that business with Philco's other activities and the introduction of the Electromaster line to distributors and dealers.

#### Washer sales almost 30% higher than highest pre-war year

Factory sales of standard-size household washers in May were second highest of any month this year, totalling 214,000 units, an increase of 9.8 per cent over 194,000 in April, according to industry-wide figures reported by the American Washer and Ironer Manufacturers Association.

It was stated that washer sales are continuing at a rate almost 30 per cent higher than that established in 1941, the industry's greatest pre-war year.

Factory sales of standard-size household washers, 1949: January, 177,900; February, 208,500; March, 254,300; April, 194,900; May, 214,000; total, 1,049,600.

#### Dean Davis represents Challenge Stamping & Porcelain Co.

News comes from Challenge Stamping & Porcelain Co., Grand Haven, Michigan, that L. D. (Dean) Davis, of Elmhurst, Illinois, is now representing the company in the Chicago

to Page 62 →

# 9 out of 10 companies can save by packaging with ACME STEELSTRAP

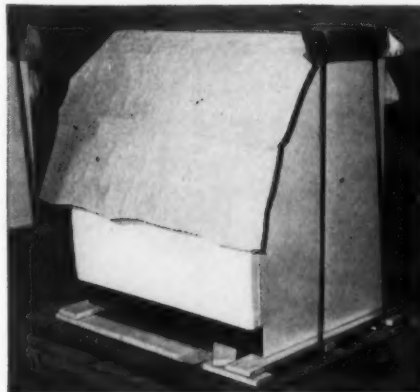
Read how Westinghouse Electric Corporation saves 30c per unit!

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Naturally, every manufacturer wants his products delivered in perfect condition. Acme Steelstrap helps assure product protection at a definite savings.

Over 45,000 other users of Acme Steelstrap report similar savings of time, labor, and packaging materials. You can probably do the same. Why not ask an Acme Shipping Specialist to look over your packaging and shipping operations? There's no obligation. Or mail the coupon today for further details.

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Laundromats,  
securely strapped to  
skid bases, are easily  
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- ☐ Have representative call.  
☐ Send free booklet, "Savings in Shipping."

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

**IT'S  
HERE,  
*Mr. Chase***

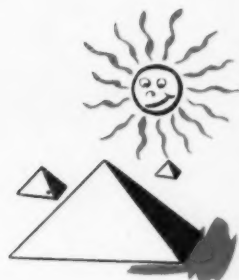
For a long while you've been telling your readers, through your editorials in **FINISH**, of the demand for a new refrigerator. One that was scratch resistant, inside and out; one that would withstand stains, that was cigarette or burn-proof, that would withstand all climatic conditions; one that would never fade, never lose its gleaming white lustre. In other words, Mr. Chase, you described a refrigerator that was finished, inside and out, in **GENUINE PORCELAIN ENAMEL**.

Well sir! It's here! Yes, for the first time since the war an **ALL PORCELAIN REFRIGERATOR** is now on the market. To you and a million like you, one manufacturer has answered your appeal for an outstanding quality finish. And by doing so, that refrigerator is definitely a jump ahead in the race for sales in today's competitive market.

To those manufacturers whose products need that extra sales appeal, may we suggest that you turn to **GENUINE PORCELAIN ENAMEL—The Lifetime Finish**.

Backed by more than thirty-nine years of experience, Pemco offers for the accomplishment of this ideal, the world's only wholly continuous smelted **UNIFORM** porcelain enamel frits, the facilities of the industry's finest laboratories, plus an engineering service that will work with you until a satisfactory solution to your finishing problem is found.

Why not inquire today.



# PEMCO CORPORATION

Baltimore 24, Maryland.

Always Begin With a Good Finish



→ from Page 59

area. This is the first time, according to the company report, that Challenge has had direct local representation in Chicago. The company specializes in refrigerator porcelain parts, both commercial and household, but has complete facilities for fabricating and porcelain enameling all types of sheet metal products, especially signs, letters and architectural porcelain.

In a report to *finish*, A. H. Ringelberg, Challenge president, stated:

"Mr. Davis is very well known to users of porcelain enamel in the Chicago metropolitan area, having been in charge of the jobbing division of Chicago Vitreous Enamel Product Co., Cicero, for a great many years up until the time when 'Chivit' discontinued their porcelain jobbing division."

#### Pierce Sperry starts new firm

The Sperry Rubber & Plastics Co. is the name of a new organization

with Pierce Sperry, for 21 years director of sales for Johnson Rubber Company, as president. Vice president is Adrian Welch, president of Geauga Industries. Secretary-treasurer is E. H. Clark, who is secretary-treasurer of Geauga.

The new company, located at Brookville, Indiana, has started production of extruded rubber and plastic products for the appliance and automotive industries.

#### National Tube presented nation's "highest safety award"

The nation's highest safety award, the "Distinguished Service to Safety Award," was presented to the 12,500 U. S. Steel employees at the Lorain (Ohio) Works of National Tube Company for achieving one of the best safety records made recently in heavy industry. The plant piled up an unbroken record of 2,164,841 manhours of working without a disabling accident.

The presentation was made by William A. Irvin, chairman of the board of trustees of the National Safety Council.

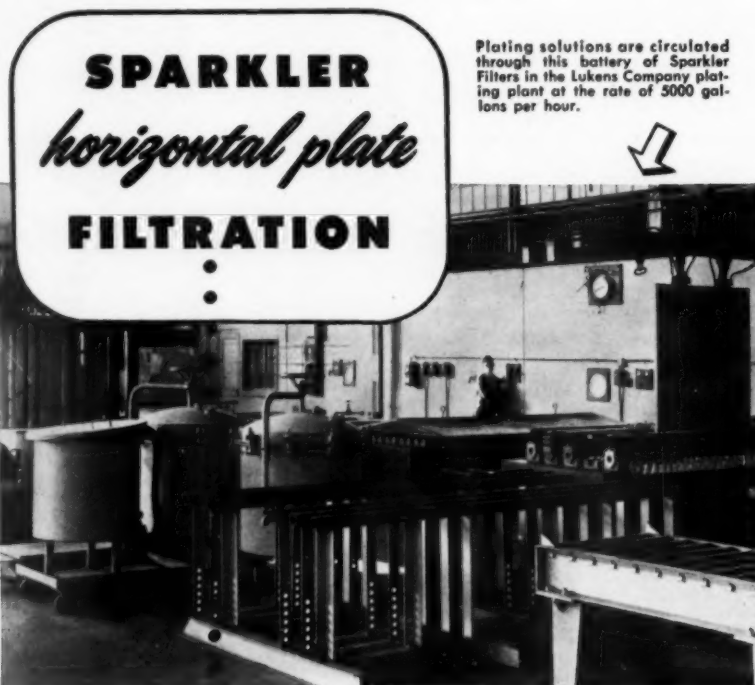
#### Westinghouse appoints industrial sales, engineering executives

John K. Hodnette, vice president and general manager of industrial products for Westinghouse Electric Corporation, Pittsburgh, Pa., has announced the appointments of three executives who will hold key responsibilities in the sale and engineering of such products.

The men and the new positions are: Tomlinson Fort, manager, apparatus sales department; William W. Sproul, sales manager, industrial products; and Royal C. Bergvall, engineering manager, industrial products.

#### Solof heads Tracy sales staff

Tracy Manufacturing Company has announced the appointment of Harold H. Solof as general sales manager. In his new position, Solof will head the sales organization directing the national sales program for Tracy Customized Kitchens, a complete line



Plating solutions are circulated through this battery of Sparkler Filters in the Lukens Company plating plant at the rate of 5000 gallons per hour.

## SPARKLER *horizontal plate* FILTRATION

..... means cleaner surfaces  
for cladding steel .....

Lukens Steel Company, pioneer manufacturer of clad steels, has found that Sparkler Horizontal Plate Filtration is important in the production of Inconel-Clad and Stainless Clad Steel.

Here's the way it works:

Oxide film, which forms easily on the bonding surfaces of all steels, acts to prevent a strong, intimate bond between these cladding metals and backing plates. Lukens, to overcome this, applies a nickel plate finish to these bonding surfaces. In the new, modern Lukens plating plant, Sparkler filters serve as assurance that this nickel plate will be perfectly clean and free from foreign matter, thus providing the best possible surface for an inseparable bond.

The horizontal plate principle used by Sparkler makes possible the formation of firm, stable filter cakes that will not slip or crack under intermittent or continuous flow. Flow through the filter is always *with* gravity, and filter aid is floated into position, forming a strong cake of even thickness that effectively removes all solids and precipitates from plating solutions. Filters are pressure-tight and leakproof, and are available in rubber-lined construction, stainless steel, or iron. Capacities from 60 to 10,000 G.P.H.

Our Engineering Service is available for your specific problems.

**SPARKLER MANUFACTURING COMPANY**  
Mundelein, Illinois

of steel kitchen cabinets including sinks in stainless steel and deluxe porcelain.

#### American Stove personnel changes

Stanley E. Little has resigned as vice president-sales to take a new position as manager of the Lorain



Stanley Little

(Ohio) Division of American Stove Company, replacing Thomas Sourbeck who retired, according to an announcement by Arthur Stockstrom, president.

The announcement said that Marc W. Pender, of St. Louis, formerly market research manager, was elected



Marc Pender

to Little's former position as vice president-sales. It was also stated that Lloyd C. Ginn has resigned as advertising and sales promotion manager.

It was also indicated in the announcement that the company was still operating its factory at Harvey, Illinois.

In a letter to *finish*, Tom Gibbons, assistant advertising manager, said "The Harvey factory is still running and it may be some little time before it will be possible for us to close it. Orders have picked up rather sharply

the past few weeks. Even though the factory is to be closed, it will still be available for re-opening should business conditions improve. We have made no plans for selling the factory or any of the equipment in it."

#### Brown Instrument announces training school schedule

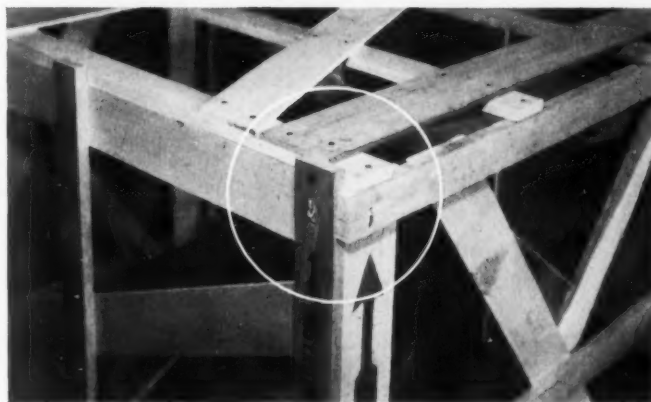
The Brown Instrument Training School is offering a variety of selective and comprehensive courses in

practical maintenance and application of industrial instruments in its new curriculum.

Special courses will be held from August 15 through September 2, September 12 through October 14, and October 31 through December 2. A comprehensive course will be held from September 12 through December 9.

Write for registration information to: Training School, Minneapolis-Honeywell Regulator Company,

## This TIGHT Hinge Corner Makes a STRONGER Crate



The exclusive "Tight Corner" Hinged Crate produced by, Bigelow-Garvey offers a degree of rigidity and strength impossible in the ordinary type of collapsible crate. This one feature alone is enough to win the praise of your shipping department. Other features such as pre-drilled nail holes, completely collapsible design, and hardwood construction throughout make for ease of assembly and adequate protection.

Bigelow-Garvey has pioneered in the design and manufacture of crates for

safe shipment of porcelain enameled appliances such as stoves, washing machines, ironers, freezers, sinks, bathtubs and similar products for more than twenty-five years. You get the benefit of this experience when you bring your packaging problems to our engineers.

For domestic packaging or for export packaging in either open or completely closed crates, let us submit our ideas and prices for "safe shipment" containers.

Also

BOX SHOOKS

PALLETS

BULKHEADS

Write us regarding your shipping problems.

# BIGELOW-GARVEY LUMBER CO.

General Office and Laboratory

320 West Huron Street • Chicago 10, Ill.

Mills • Arkansas • Georgia • Wisconsin • Minnesota • Washington

Brown Instrument Division, Wayne and Roberts Avenues, Philadelphia 44, Pa.

#### **Eight regional meetings to launch AGA "old stove round-up"**

Opening at Atlanta, Ga., on August 1st, a series of eight regional meetings will be held during August and early September to launch the American Gas Association's National Old Stove Round-Up, a campaign in

which nearly 400 gas utilities, 62 gas range manufacturers, and some 70,000 gas range dealers will coordinate their efforts to replace old, out-

moded, and obsolete gas ranges with modern, up-to-date, gas cooking appliances equipped with the latest convenience and performance features.

#### **The salesman has disappeared**

Morrow, vice-president in charge of merchandising for Mullins Manufacturing Corporation.

Reporting on Mullins' nationwide campaign to recruit retail salesmen for its Youngstown Kitchen dealers, Morrow said that the most valuable lesson learned from the experiment is that *there are very few salesmen available.*

"We found out quickly and, we think, in the easy way, what has been suspected for some time—namely, that an entirely new crop of men must be sold on entering retail selling as a career," Morrow said.

Mullins launched its manpower recruiting drive with a double-page "Men Wanted" advertisement in the May 7 issue of *Saturday Evening Post* and in several trade publications. Inquiries fell far short of the number expected. Mullins then proceeded to place similar advertising in 69 college and university newspapers and specialized selling journals.

By the end of June, a total of 1,400 letters from interested men had been received and referred to Youngstown distributors in areas from which the letters had originated.

From the first 500 leads sent to distributors, 36 out of Youngstown's 64 distributors reported that 130 salesmen had been hired and put to work in the employ of retail dealers. Each man was put through the Youngstown training course and was accompanied on two retail calls by an experienced salesman before being put on his own.

Morrow said that additional men undoubtedly have been hired through recruiting activities by distributors and dealers at the local level and have not yet been reported to the factory.

"While the results of our initial campaign did not reach our expectations, we are far from disappointed," Morrow said. "Now we know what the situation is and we are re-

## **WE WILL PROVE YOU CAN REDUCE COSTS with FIBER-and-STEEL Strapping**



### **WRITE OR WIRE FOR TEST DEMONSTRATION**

**on how your shipping losses can be reduced —no obligation**

Let the A. J. Gerrard packing engineers prove to you that FIBER-and-STEEL will hold vitreous enamel stove doors or similar vitreous enamel products in a better non-vibrating position during shipment and *will end your claims and complaints due to chipped enamel surfaces.* Uncrating is easier and there are no adhesive stains with FIBER-and-STEEL.

FIBER-and-STEEL is strong. It is a combination of steel strapping and soft, weather-proofed Kraft paper. It is secured with a soft aluminum Gerrard seal. Demonstrations are now being scheduled among stove manufacturers and builders of vitreous enamel products. Write or wire so that you, too, can get information on how to reduce your costs.



### **A. J. Gerrard & Co.**

1958 Hawthorne Place, Melrose Park, Ill.  
(Chicago Suburb)

#### **FIBER-and-STEEL now used by**

- Cribben and Sexton Co.
- Crown Stove Co.
- Perfection Stove Co.
- Odlin Stove Co.
- Dixie Foundry
- Morge Division
- Mt. Vernon Furnace & Mfg. Co.



doubling our efforts to attract good retail sales talent to the kitchen merchandising business.

"In our opinion, the prosperity of our country depends upon a strong and successful sales force to move goods from factories to consumers, keeping men and dollars at work."

#### Binks opens spray finishing school for supervision personnel

Educating foremen, supervisors, salesmen, jobbers, and business executives, instead of the workmen, in spray finishing methods and equipment is a feature of a Spray Finishing School opened in Chicago recently by Binks Mfg. Co.

It was stated that the reason for this departure from the normal pattern of industrial training classes is that the real problems of spray finishing are faced by factory executives and managers, salesmen, and manufacturers of industrial coatings. Another feature of the school is that each class will be composed of men with allied interests. For example, ceramists and porcelain enamellers will compose one class.

Classes will be held during the first full week of each month, except December, at the firm's plant from 9 a.m. to 4 p.m., Monday through Friday.

Applications from individuals wishing to attend should be made two weeks in advance. Write to Mr. E. F. Watts, Binks Manufacturing Co., 3122 Carroll Ave., Chicago 12, Illinois.

#### Floyd-Wells advances Fisher

W. Frank Fisher has been appointed general manager of The Floyd-Wells Company, Royersford, Pa., it was recently announced by Paul Brooke, president of the firm.

Fisher joined the firm in March, 1947, and was active in the sales department for a year. He then conducted a service school at the plant for dealer service men. Last November he was elected commercial manager at the home office.

finish AUGUST • 1949

#### Central enamellers annual fall outing, August 27

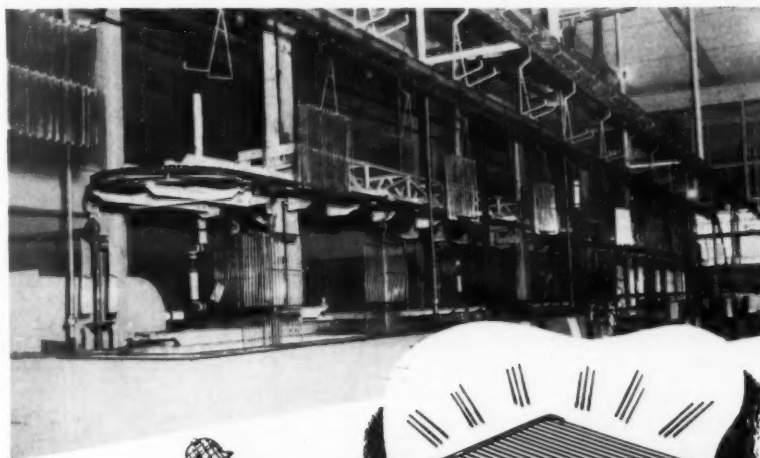
The annual fall outing of the Central District Enamellers Club will be held Saturday, August 27, at Alliance Country Club, Alliance, Ohio. Golfing will begin at 2 p.m., with dinner at 7 p.m. Reservations must be in by Monday, August 22, according to M. Bozsni, Club secretary-treasurer.

#### Kraft Chemical appointment

Joseph W. Smith, formerly with Brunswick-Balke-Collender, has joined the sales staff of Kraft Chemical Company, Chicago. He will work in Kraft's middle west territory.

Smith was recently assistant purchasing agent for Brunswick in Chicago in charge of the purchase of chemicals. He is a graduate of Northwestern University.

More News . . . Page 71 →



17 x 9,000 = LOW COST SHELVING

153,000 operations . . . that's only one day's work for the giant plating conveyor in Union Steel's shelving plant. Seventeen different cleaning, pickling, rinsing, dipping, plating and drying operations are all handled automatically on more than 9,000 shelves a day by this one machine.

When you specify Union Steel you can be sure your finished shelves are as perfect as modern, big volume machinery and inspection can make them. Every step . . . straightening, bending, joining, smoothing, reinforcing, trimming, bevelling, welding and plating . . . is carefully inspected to meet USP's exacting standards of quality control.

Whatever your shelving requirements, it will pay you to rely on Union Steel's vast fabrication facilities and more than 40 years manufacturing experience. At USP you get shelving of high quality and modern design . . . mass-produced at low cost. Ask us to prove it.



**UNION STEEL PRODUCTS COMPANY**  
WIRE PRODUCTS DIVISION  
ALBION • MICHIGAN

## This plant is built to design, fabricate and finish sheet steel signs

(Continued from Page 22)

immediately adjacent to the brushing room. The dark room is 20' x 20', air conditioned, and equipped to make photographic screens up to 8' in length. It is complete with screen developing equipment, dryers, vacuum printing frames, carbon arc lamps, and other equipment for complete fabrication of screens of stainless steel, phosphorous bronze and silk.

The stencil department is equipped with layout tables and necessary equipment for producing paper stencils and zinc stencils as required for fine work.

The brushing room is 55' x 72' and is closed off from the remainder of the porcelain plant. Conveyor chases have been left in the wall for a connection to the continuous furnace to be installed. Provisions also have been made for the monorail from the slot top furnace to extend through the brushing room so that the ware can be brushed and hung directly upon the burning tools.

The screen process department is 40' x 55' and is complete with a gas fired 30' tunnel-type dryer so that multicolors can be put on before they are fired. This department is equipped with screening tables with magnetic holddowns, operated by DC generator sets which insure perfect registration and control multicolor work. Provisions have been made adjacent to this department for execution of special ceramic art. A unit as long as 30' can be set up and be hand painted at one time.

### Furnace equipment

The plant is equipped with two box furnaces with provision for a continuous furnace. One box furnace is a muffle type, 5' x 12' with a 5' side wall. This furnace is equipped with two speed forks. The second box furnace is of a new radiant tube type, semi-automatic, slot in roof design, with a firing chamber 5' x 13' with a 6' side wall. The front door on this furnace lowers into a pit at the front of the furnace and the ware is charged into the furnace with a mono-

rail conveyor which passes through a slot in the top. The monorail system is designed so that porcelain enamel ware may be hung directly on burning tools from the brushing, screening and/or spraying operation. The charging of these monorail dol-

### History of Texlite

Over 25 years ago, *Texlite, Inc.*, then known as *Texlite Electric Sign Co.*, was located in Dallas on a small unpaved street called *Trezevant*. The business had been started in 1879 as *Borich Sign Company*. In those days the firm employed 18 persons, and chief manufacturing was that of electric signs. At that time the use of porcelain enamel for sign faces was almost unknown.

In 1926, *Texlite* built its first neon sign which was erected on a shoe store in Dallas, and is still burning today.

Arrangements were made in 1927 to occupy a much larger plant on *Commerce Street*. In 1930, the management decided to install a porcelain enameling plant in order to make sign faces for neon signs. One small box furnace was installed as were rather crude pickling and spraying equipment.

In 1935, a fire destroyed practically everything in the plant. The company then bought a building on *Factory Street* from which *Texlite* just recently moved to its new site on *Manor Way*.

Early in 1937, *Texlite* installed a new radiant tube furnace which then was the largest box type furnace in the world.

After World War II, many businesses had tremendous requirements for signs on hand, and the importance of expansion became evident to *Texlite* management.

lies into the slot type furnace will be accomplished by a power driven unit, eliminating the necessity of the burner pushing ware into and discharging the furnace after the burning operation.

Provision has been made in the roof sections of the building to greatly expand this furnace conveyor system to connect all spray booths, brushing room, screen process area and continuous dryers at a later date. Every care has been taken to protect the furnace operators from heat which is usually prevalent around a box type furnace. The building has been built with a 30' high ceiling heat trap over each furnace. These heat traps are equipped with gravity heat louvers and power exhaust units so that furnace heat can be dissipated out of the building. The burners and exhaust manifold system at rear

of radiant tube furnace are encased by a heat insulated wall and heat is removed by power exhausters.

### Neon department for tubes, frame building and assembly

The neon department is adjacent to the neon assembly and the neon sign fabrication department, and is equipped with one glass bending table which is 6' wide and 30' long and designed to accommodate six glass blowers. The glass burners are mounted on stands adjustable as to height, two for each glass blower, adjacent to the bending table. All air and gas for operation of these blowers are placed in a floor chase under the floor, with outlets provided for each burner. At each glass blower's working space, a cool air duct blows a blast of air from beneath the glass bending tables to provide comfort for the glass blowers. This department is completely equipped with process equipment required for the complete manufacture and processing of all types of neon tubing and lighting.

### Sign frame fabrication

The new *Texlite* building is completely equipped to handle neon sign or spectacular from the creation by its designers, complete engineering of structures, fabrication and enameling of all faces, fillers and then the building and assembly of the frame and electrical portions of the sign. The frame building and assembly department is complete with structural steel fabricating equipment, including shears, angle punches and a complete welding department where quantity neon signs are built by use of weld jigs and are assembled in assembly jigs. This department is equipped with a synthetic spray booth for painting of angle iron frames and all metal portions of the sign not finished in porcelain enamel. The roof of this portion of the building is designed so that monorail bridge cranes can be installed for overhead handling of all signs through the assembly operation.

### Shipping department

The shipping department adjacent to the neon assembly area is equipped

## It's **MISCO** for **HEAT RESISTING ALLOYS** IN ROLLED MILL FORMS

Sheets — Plates — Rounds — Squares — Hexagons — Flats — Angles —  
Channels — Sections — Pipe — Nuts — Welding Rod —

If you use heat resisting alloys for Enameling Fixtures, we would like to send you our stock list of Misco Alloys in Rolled Mill Forms

WE SPECIALIZE IN A.I.S.I. TYPES 330, 310, 309, 430

**ROLLED PRODUCTS DIVISION**  
**Michigan Steel Casting Company**

1599 GUOIN ST. • DETROIT 7, MICH.

**MISCO**

One of the World's Pioneer Producers and Distributors  
of Heat and Corrosion Resisting Alloys

U. of I. checks refractories  
for low temperature frits



Stanley Paspy, special research assistant, and Prof. Ralph Cook, both of University of Illinois, Department of Ceramic Engineering, check operation of a furnace used in testing refractories for resistance to low temperature enamel frits. This research work is being sponsored cooperatively by three large frit producers.

finish AUGUST • 1949

## Clean big parts with the **OAKITE STEAM GUN!**



**H**ERE'S an easy way to clean metal parts that are too large to be soaked in tanks or conveyed through washing machines.

Just use the Oakite Solution-Lifting Steam Gun to apply an Oakite cleaning solution under about 40 pounds of steam pressure. Oil, grease and other dirt vanish quickly, leaving parts ready for inspection, assembly, further machining, overhaul or repair. The same gun may be used with Oakite paint-stripping solutions.

**FREE** Write to Oakite Products, Inc., 17 Thames St., New York 6, N. Y., for illustrated folder F7338 containing more information about the various models of the Oakite Solution-Lifting Steam Gun and the many cleaning operations on which they are used with substantial savings in time and money.

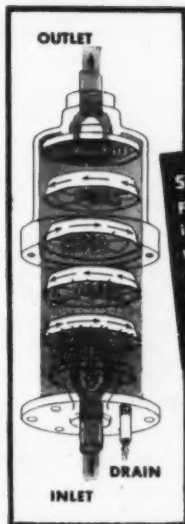


# OAKITE

INDUSTRIAL CLEANING MATERIALS • METHODS • SERVICE

Technical Service Representatives Located in Principal Cities of United States and Canada

## Why does an **ARIDIFIER**



**REMOVE 92% OIL, WATER AND DIRT FROM GAS AND AIR LINES?**

**STUDY EXPLODED VIEW FOR ANSWER**

Four multi blade rotors revolve at high speed in opposite directions under impact of air movement through non-aligned rotor spaces. Moisture, dirt and other foreign matter which collect on rotor blades are thrown out of air stream by centrifugal force to side of housing, and pass into drain.

For paint and lacquer spraying, ceramic, sand blasting, air cleaning, etc. Easily replaces less efficient baffle type devices. Tell us details of your problem when you write for a catalog.



CAPACITY RANGE: AS LOW AS 7 CFM TO 17,000 CFM.

Made By The  
Manufacturers of  
Logan Lathes  
and Shapers.

# Logan ENGINEERING CO.

4929 W. LAWRENCE AVE., CHICAGO 30, ILL.



with 16,500-lb., floor-type dial scales for verifying weights. The department is so located that signs can be handled with power fork lift truck directly into railroad cars or trucks for LCL shipment. The department is also located in such a manner that it is both close to the neon assembly and to the final processes of porcelain enamel signs and faces. Adjacent to the shipping department is adequate space for storage of standard stock letters and standard stock signs which are shipped from stock.

#### Tool room

The plant is equipped with a complete tool room where all tools such as blanking dies, forming dies, and assembly jigs are built. This department is equipped with a milling machine, tool room lathes, shapers, saws, precision drill presses, die filing machines, radial drill, complete heat treating equipment, with an inspection department equipped with a 36" x 72" surface table, Rockwell machine and necessary gauges and equipment for assuring quality production.

#### Air system

Realizing the importance of adequate clean air, the new plant is installing a completely controlled ventilation system. A new double-stage air compressor furnishes 405 cubic feet of air per minute. Provisions have been made in the air compressor room for a second unit of the same type and size. The air intake system into these compressors is filtered through an oil filter unit located 12' above the ground on the outside of the building. A service platform is provided so that these oil filter mats can be removed and cleaned as required. The air compressor is complete with an inner and after cooler. These units are cooled with a circulating pump and a water tower located on the roof above. This water circulating system is complete with visible flow indicators, thermometer wells and provision so that the circulation of the water to the cooling tower can be short circuited during extreme winter conditions to eliminate freezing. Adjacent to this new compressor, a 175 cubic

foot per minute compressor is mounted, which is used for auxiliary air and for third shift operation. The air from this compressor flows through the same after-cooler unit which handles the air from the new compressor. This air is pumped into an air receiver 12' high and 5' in diameter. From this receiver, a 4" air manifold system runs the complete length of the building. From this air manifold, headers run out to the various pieces of air operated equipment. The complete air manifold system is laid out so that condensation can be drained from the line. Every attempt has been made to eliminate condensation and oil from the air system.

#### Office and showrooms

The two story front portion of the plant consists of approximately 16,000 square feet, is entirely air conditioned for summer and winter and will house the offices, engineering department, art department, layout room, cafeteria, etc.

The reception room has a receptionist counter which is a porcelain enamel mural depicting the history of signs from the time the Indians blew smoke rings until the most modern sign display, a replica of the sign on the front of the new plant. This room is cove lighted, has a terazzo floor, and on the back wall has a porcelain enamel showcase in which are displayed various athletic trophies won by personnel of the company.

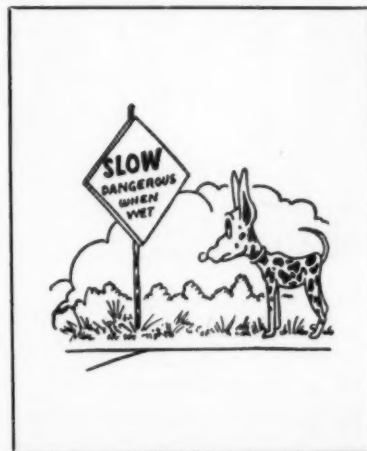
On the second floor is a layout room, size 50' x 50', where large patterns can be laid on the floor all in one piece so that alterations and corrections can be made and so that one can see exactly what the pattern looks like in one piece. We think the floor of this room is the largest drafting table in the world. A complete engineering and designing department is located in this section of the building.

The conference room has a ceiling and trim around the cove, fabricated of porcelain enamel and a continuous light fixture mounted in the center of the room is also finished in porcelain enamel. The room is lighted by

ten rows of neon tubing. Special treatment was given in order to show the special effects which can be obtained by various colored lighting in this room. The center continuous light trough is equipped with several colored tubes which are controlled by separate switches. The conference room is equipped with a special display case with provisions for sample tubes of neon of thirty-six different colors, which are available in neon tubing. The room is also equipped with a projector and screen for moving pictures or slides and has a television receiver.

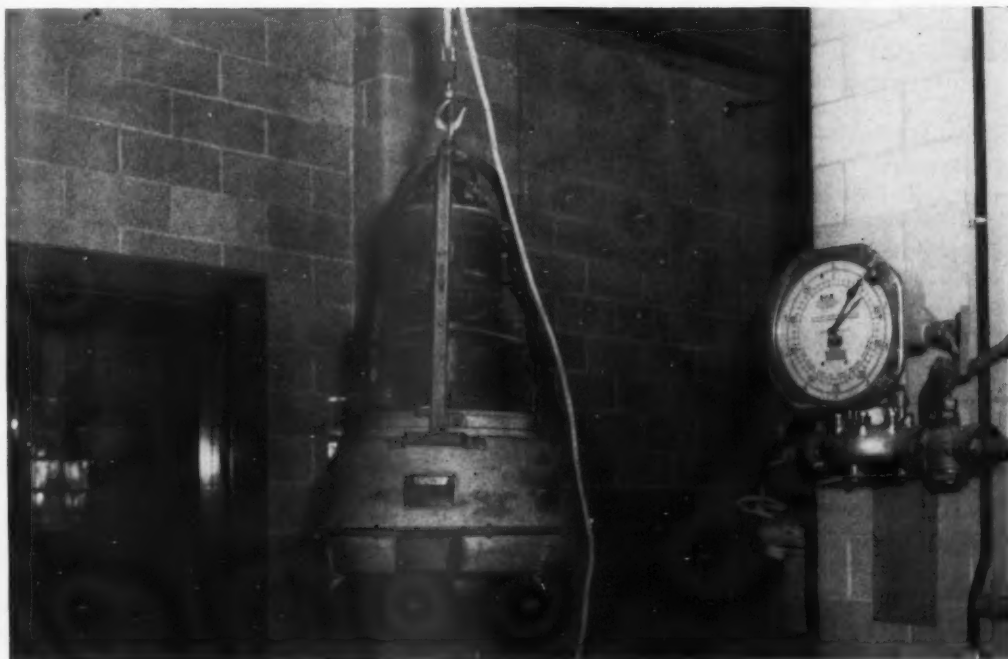
#### Special features

There will be a special room for the making of acetylene, and to house the oxygen manifold and tanks. The plant is equipped with semi-live skids with roll away jacks for the handling of sheet stocks through the fabrication department. Fork trucks are used for all heavy lifting and moving of material. A special 7,000 lb., 144" lift truck handles large signs through the warehouse and crating and loading areas, while a 4,000 lb. truck is used in the shipping department for the handling of large cartons, loading and unloading railroad cars and handling boxes and crates. The mill room is equipped with hydraulic lift trucks for handling milled enamel from the mill to the spray booths. All enamel cans are set on steel platforms so they can be handled with a hydraulic jack truck. Everything possible has been done to simplify materials handling and eliminate unnecessary in-plant transportation.



# *Rotospraying...*

## **is STANDARD at Texlite and STANDARD for the industry**



This photograph shows a typical Rotospray unit in use in the New Texlite plant at Dallas, Texas.

Rotospray is standard at Texlite for keeping enamels clean and assisting in the production of first-quality signs and other porcelain enameled products.

Rotospray is standard for the porcelain enameling industry, and has earned its place through the efficient and economical sieving of porcelain enamel slips in hundreds of operating plants.

Rotospraying is standard because it has proved itself a most effective and efficient method of

accomplishing this very necessary operation.

Every enameling plant needs a Rotospray. Large enameling plants need multiple units. From now on, quality must be the paramount quality in every finished product but at the same time production costs must be minimized. Rotospray can help on both points.

Check your plant now and get complete information direct from us or from one of our authorized agencies.

**ROTOSPRAYS ARE USED EFFECTIVELY IN CHEMICAL PLANTS, PAPER MILLS, AND POTTERIES ALSO**

### **ROTOSPRAY**

(Reg. U. S. Pat. Off.)

**Sales representatives —**

B. F. DRAKENFELD & CO., INC., New York, N.Y.  
PEMCO CORPORATION, Baltimore, Md.  
O. HOMMEL COMPANY, Pittsburgh, Pa.  
FERRO ENAMEL CORP., Cleveland, Ohio and foreign offices  
CHICAGO VITREOUS ENAMEL PRODUCT CO., Cicero, Ill.

BRAUN CORPORATION, Los Angeles, Cal.  
BRAUN KNECHT & HEIMANN CO., San Francisco, Cal.

**Foreign representatives —**

WATFORD ENGINEERING WORKS, Watford, England  
ELOF HANSSON, Gothenburg, Sweden

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## **ROTOSPRAY MANUFACTURING COMPANY**

**562 WASHINGTON BOULEVARD • CHICAGO 6, ILLINOIS • TEL. DEArborn 2-7196**

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## PEI sales management

→ from Page 30

sonnel services. Seventeen thousand of them are engaged in manufacturing as owners or managers. They pay one-third of our income taxes. In 1942, they cast more than one-half of our votes. They spend seventy-five per cent of all the money that goes for clothing and eighty per cent of all the money that goes for food. But perhaps the odd importance of sex in economics is most strikingly brought out in the single fact that American women buy sixty-seven per cent of all consumer goods."

One point in her talk which should be of particular interest to the producer of all household appliances is related to color. Miss Davidson describes a series of kitchens which have been featured by the *Ladies Home Journal* in which carefully worked out color schemes were used for consumer research. "Judging from our reader response," said Miss Davidson, "these kitchens have received a big hand. Planned for efficiency, they also have that extra

oomph that color gives. If women were not going all out for color these days, we doubt if these kitchens would have met with such enthusiasm. We offer this conclusion as a word to the wise."

A thorough discussion of "The Evaluation of Competitive Finishes" was covered by Dr. Spencer-Strong in an explanation of comparison studies which have been made over a period of time. Porcelain enamel stands alone in many respects when all of the characteristics important to household appliances are concerned.

Dr. Bahnsen presented a complete processing demonstration for sales promotion which showed the mechanics of making and applying porcelain enamel.

With the amount of constructive information and well developed ideas that were presented in a single day's conference, it would seem that it would be impossible for anyone attending the meeting to have gone back to his respective business without the feeling of having picked up

many usable ideas that might be readily translated into profits.

## Method for checking water vapor in drying systems

→ from Page 24

humidity changes. In one instance, while setting one of these units up for service, the writer took a reading of the two thermometers while the dryer chain had stopped. The water vapor content was 4%. Turning around to adjust an air line, the writer spent about a minute and a half before he re-read the thermometers to verify the original readings. In that time, the dryer chain had started up again, and due to the fresh ware entering the dryer, the water vapor content increased, and resulted in a rise of several degrees on the wet bulb.

Two of these instruments are being placed in enamel plants for the purpose of developing test data. It is hoped that the use of this or similar instruments will lead to more definite knowledge of proper dryer operation.

## BEST FOR ~~GOOD~~ LOW TEMPERATURE ENAMELS --- LITHIUM IS A MUST!



**METALLOY CORPORATION**  
RAND TOWER MINNEAPOLIS, MINN.  
Division **LITHIUM CORPORATION**  
OF AMERICA, INC.

Now you can have "high temperature quality" with "low temperature" enamel frits. To the enameler, this means the use of non-premium steels, the elimination of warpage, and all the benefits of lower temperatures . . . while retaining all the quality of "hard" enamels. How can YOU get all these?

### With Lithium in the mill!

For ground coats: Lithium Titanate-B or Lithium Manganite.

For cover coats (regardless of type): Lithium Titanate-A or Lithium Zirconium Silicate.

Extensive plant tests and produc-

tion runs prove that small additions of these compounds reduce firing temperatures from 30° to 60° F., depending on individual plant conditions. And, in some cases, acid resistance was improved at this lowered temperature.

Even those enamels already in the category of "low temperature" can be substantially improved by Lithium mill additions. Write today for valuable information that will insure you of the best quality enamels at lowest cost.

MAIL THE HANDY COUPON BELOW NOW!

**METALLOY CORPORATION RAND TOWER**  
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Gentlemen:

Please send me full information on the use of Lithium compounds for

☐ Cover coats

☐ Ground coats

Name..... Title.....

Company.....

Address.....

City..... Zone..... State.....



### Carnegie-Illinois appointments

Carnegie-Illinois Steel Corporation has announced the appointment of Paul E. Thomas, as assistant to the general superintendent of its Gary Steel Works, and Daniel E. Wise, to succeed Thomas as chief engineer.

Thomas has been chief engineer of the Gary plant for the past year. Wise had served as chief engineer of the Clairton (Penn.) Works since January 1, 1948.

### Color council for homefurnishings completes color palette

The completion of the color palette for the homefurnishings manufacturing and retail trades has been announced by the Color Council for Homefurnishings.

The Council was formed in April of this year to aid industry to simplify its delivery of more appealing and harmonious colors to the shopping home maker.

To accomplish this, the first step was the selection of a palette of colors for each of the homefurnishings lines, which colors when available in merchandise would help the retailer and home maker find "go-together colors" easily.

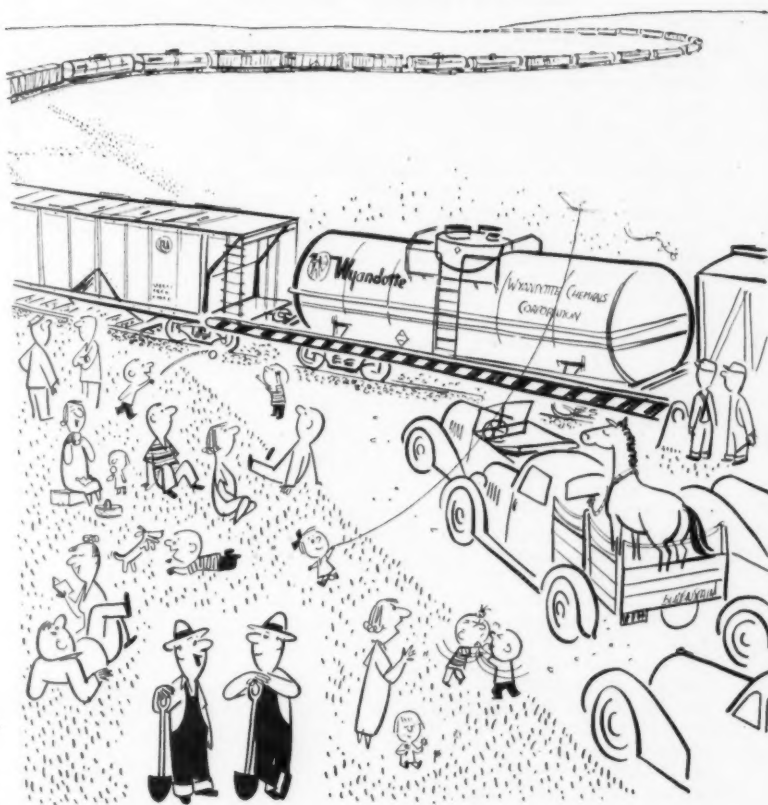
The Color Council then selected one specific color sample which they unanimously considered to be most typical of each of the major color groups and added it to the "palette."

Upon completion of their selections, the Council found they had selected a total of exactly 100 colors, divided into just 20 color families. These 20 color families represent those which were unanimously agreed as most important in varied merchandise lines during 1949 and 1950.

The Color Council for Homefurnishings, a non-profit organization, does not suggest that these colors be accepted as standards by any segment of the trade, but rather that the palette be used as a guide to better and more popular homefurnishings styling, buying and merchandising.

For further information, write Color Council for Homefurnishings, 9 East 56th St., New York City 22.

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"They've been waitin' here for seven hours"

You'll never have to wait this long for a moving train at a railroad crossing, but that's what would happen if the annual production of Wyandotte Chemicals Corporation were put into a single freight train. It would take more than 29,000 tank, box, dry ice and hopper cars to carry the 1,250,000-ton load. Moving at 30 mph., the 222-mile-long train would pass a given spot in about seven hours.

Wyandotte Chemicals Corporation, with its own sources of raw materials, is the world's largest manufacturer of specialized cleaning compounds for business and industry.

Wyandotte makes the complete line of balanced metal cleaners, including products for any soak, electrolytic, spray or tumble operation, as well as degreasing, burnishing and burring compounds. No matter what your cleaning needs may be, it will pay you to get in touch with your nearest Wyandotte Representative. He's always at your service.



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